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ARTICLE No. 1.

✓ A List of Kharoṣṭhī Inscriptions.

By N. G. MAJUMDAR.

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OFFICIAL MATTER

[PROCEEDINGS]

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A List of Kharoṣṭhī Inscriptions.

By N. G. MAJUMDAR.

PREFACE.

The following *List of Kharoṣṭhī Inscriptions* was originally intended to form part of a thesis, submitted in 1922, for the Premchand Roychand Studentship of the Calcutta University. About the beginning of the current year I had an opportunity of studying most of the inscriptions in detail, being deputed by the University to visit the Museums at Lahore, Taxila and Peshāwar. This fresh study, which was made possible for me by the late lamented Sir Asutosh Mookerjee, has now enabled me to present the list in a revised and more comprehensive form. Twelve years ago Professor Lüders published a systematic and up to date list of Brāhmī inscriptions (Appendix to *Epigraphia Indica*, Vol. X). An attempt is now made to place before scholars a similar list of Kharoṣṭhī inscriptions to facilitate research work. The list is to be regarded as preliminary to a detailed edition of the inscriptions in a *corpus* form, a task on which a renowned Norwegian scholar, Professor Sten Konow, is at present engaged.

As regards the method and plan adopted in this list a few words are I think necessary by way of explanation. I have included in it, as far as possible, all Kharoṣṭhī inscriptions that have so far been noticed or published by scholars. There are however a few which are noticed here for the first time. I have purposely excluded from the list Sir Aurel Stein's Kharoṣṭhī documents from Central Asia. There are many Gandhāra sculptures, *e.g.*, the one from Kharkai (Cunningham, *Arch. Surv.*

Rep., Vol. V, pp. 54, 63 and Plates XII-XIII), bearing single, or only two or three Kharoṣṭhi letters. No cognizance has been taken by me of such letters as they are not sufficient to be regarded as inscriptions. The Kharoṣṭhi inscriptions on coins, gems, rings and seals also do not come within the range of my present list as they require to be treated on an altogether different plan. The epigraphs are arranged alphabetically according to the names of find-spots. The mention of an inscription, when that happens to be noticed or published already, is followed by a list of the principal bibliographical references, which are given in a chronological order. Dated portions of a record, when there is a date, are quoted separately after bibliographic entries. Next comes a summary of the text. I have however considered it useless to give abstracts of Aśoka's Shāhābāzgarhi and Mānsehrā edicts, because, they represent only variants of a text, principally known from its other recensions.

My thanks are due to Sir John Marshall, Director-General of Archæology in India, for giving me facility in carrying on investigation in the Museums containing Kharoṣṭhi inscriptions. I am also indebted to Mr. H. Hargreaves and Rai Bahadur Daya Ram Sahni, Superintendents, Archæological Survey, as well as to their Assistants, for the kind help and guidance I received in their own respective spheres. I also take this opportunity to express my debt of gratitude to my former teacher, Professor D. R. Bhandarkar, who has kindly gone through the whole of this manuscript and offered me a number of valuable suggestions.

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Calcutta University.
June 24th, 1924.*

LIST OF INSCRIPTIONS.

1. *Ārā*¹ (now Lahore Museum, no. I, 133) inscription of the the year 41 of Kaniska.
 1908 Text and translation, Banerji, *Ind. Ant.*, Vol. XXXVII, p. 58 and pl.
 1909 Correction, Lüders, *Jour. Roy. As. Soc.*, 1909, p. 652.
 1910 Vogel, *Jour. Roy. As. Soc.*, 1910, p. 1314.
 1912 Text and translation, Lüders, *Sitz. Kön. Preuss. Ak. d. Wiss.*, p. 824.
 1913 Do. (English translation), Nariman, *Ind. Ant.*, 1913, p. 132.²
 1913 Fleet, *Jour. Roy. As. Soc.*, 1913, p. 967.
 1914 Smith, *Early History of India*, 3rd ed., p. 255, n. 1.
 1914 Konow, *Zeits. d. Deutsch. Morg. Gess.*, Bd. 68, p. 97.
 1916 Text and translation, Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, p. 787.
 1920 Text and translation, Konow, *Ep. Ind.*, Vol. XIV, p. 130 and pl.
 Date: Ll. 1-3.—*Maharajasa rajatirajasa devaputrasa [Ka] isarasa*³ *Va - spa*⁴ *-putrasa Kaniskasa sambalsarae ekacapar[ī][śai] sam 20—20—1 Jethasa masasa di [20—4—1.]*
 A well (*kupa*) is excavated (*khada*) by Daṣafota, son of Poṣapuri; and the religious gift (*dhamadaṇa*) of one Lakh (*la 1*).
 2. *Bedadi*⁵ (Dist. Hāzārā) copper ladle inscription.⁶
 1924 Text and translation, N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S., Vol. XIX, p. 345 and pl. 14.
 Gift (*dana*) by Saṃgharakṣita (Saṃgharachita) to the

¹ A stream (*nallah*) about 2 miles due East of Chah Bāgh Nilāb of maps, on the Indus, about 10 miles South-south-west from Attock. See Fleet, *Jour. Roy. As. Soc.*, 1913, p. 97, n. 2.

² See also *Literary History of Sans. Litt.*, App. VI, p. 245.

³ This reading is according to Lüders and Konow. An examination of the stone, which I undertook in February 1924, left no doubt as to the reading of the last four letters, *isarasa*; but the first letter could not be clearly read. The reading given above may therefore be adopted for the present as no better one is forthcoming. It is after all not impossible for Kaniska to have adopted a Roman Imperial title 'Kaisar.'

⁴ The second letter has been read *si* by Banerji and *jhi* by Lüders; but it does not appear to be either of the two. The sign, which does not occur elsewhere, perhaps represents a conjunct with *d* as the second member.

⁵ It is in Mānsehrā Tahsil, Dist. Hāzārā, on the river Siran, 'some 12 miles by road to the north-north-west of Mansehra and circ. 3 miles south of the large village of Shankiari.' Stein, *Arch. Rep. N.W.F. and Baluchistan*, 1904-5, p. 18.

⁶ The object is with Mr. T. B. Copeland, M.A., I.C.S., Deputy Commissioner of Hāzārā.

Kāśyapiyas (*Kasyavia*), at the Congregation of Four Quarters (*saṃgha cadudīśa*), in Uraśā Kingdom (*Uraśa-
raja*).

3. **Bimāran** (near Jālālābād, Afghanistan, now British Museum) vase¹ inscriptions.²

1834 Lithograph, J. Prinsep, *Jour. As. Soc. Beng.*, Vol. III pl. XXII.

1841 Masson, Wilson's *Ariana Antiqua*, p. 70.

1841 Wilson, *Ariana Antiqua*, p. 259.

1844 H. T. Prinsep, *Note on the Historical Results deducible from Recent Discoveries in Afghanistan*, pl. XV.

1844 Burnouf, *Introduction à l'histoire du Bouddhisme Indien*, 1st. ed., p. 348, n. 2 (= 1876 Do. 2nd. ed., pp. 310-11, n. 5).

1847 Text and translation, J. Bird, *Historical Researches on the Origin and Principles of the Bauddha and Jaina Religions*, p. 63.

1854 Text and translation, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXIII, p. 707.

1858 E. Thomas, Prinsep's *Essays on Indian Antiquities*, Vol. I, p. 105 and pl. VI (same as H. T. Prinsep, *loc. cit.*, pl. XV).

1863 Text and translation, Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 241.

1890 Senart, *Jour. As.*, sér. 8, tome XV, p. 133.

1894 Senart, *Jour. As.*, sér. 9, tome IV, p. 514.

1921 Text and translation, Pargiter, *Ep. Ind.*, Vol. XVI, p. 97 and pl.

A.—*On the lid*.—Gift (*danamuha*)³ of Śivaraksita (Śivara-chita), son of Mumjanamda, together with the corporeal relics (*śarira*) of the Lord (*bhagavata*), i.e., the Buddha.

B.—*Round the vase*.—Gift (*danamuka*) of Śivaraksita (Śivara-chita), son of Mumjava(na)da, together with the corporeal relics (*śarira*) of the Lord (*bhagavata*), i.e., the Buddha, in honour of all Buddhas.

4. **Chārsadda**⁴ (Dist. Peshāwar, now Peshāwar Museum, no. 414) earthen jar inscription.

¹ The vase was found along with a gold reliquary which is also in the British Museum. See Smith, *Fine Art in India and Ceylon*, Pl. LXXIV, fig. B. For its description see *ibid.*, p. 356 and n. 2. *Arian. Ant.*, p. 53, pl. III, and Foucher, *L'Art Greco-Bouddhique du Gandhāra*, Vol. I, p. 51, fig. 7, etc.

² As coins of Azes II were found inclosed along with the vase in an apartment within the Stūpa the inscriptions must be assigned to his reign. See Wilson's *Ariana Antiqua*, pp. 53, 330, and Smith, *Catalogue of Coins in the Ind. Mus.*, Vol. I, p. 52, n. 1, and *Fine Art in India and Ceylon*, p. 356.

³ I. E. *dāna-mukha*. Cf. *lihati* for *likhati* in Central Asian Khorošthi documents.

⁴ This and the two following are from Palaṭu Dheri, Chārsadda.

- 1904 Text, Marshall and Vogel, *Ann. Rep. Arch. Surv.*, 1902-3, p. 163 and fig. 15 A, and p. 164 and n. 1.
- 1904 Vogel, *Ann. Prog. Rep. Arch. Surv.*, *Panjab and U.P. Circle*, 1903-4, pp. 6-7.
- 1906 Text and translation, Lüders, *Ann. Rep. Arch. Surv.*, 1903-4, p. 289.
- Gift (*danamukha*) of to the monks (*śamana*) of the Community (*saṃgha*) of Four Quarters (*catudīśa*).
5. Chārsadda (now Peshāwar Museum, no. 413) earthen jar inscription.
- 1904 Text, Marshall and Vogel, *Ann. Rep. Arch. Surv.*, 1902-3, p. 163 and fig. 15 B, and p. 164 and n. 1.
- 1904 Vogel, *Ann. Prog. Rep. Arch. Surv.*, *Panjab and U.P. Circle*, 1903-4, pp. 6-7.
- 1906 Text and translation, Lüders, *Ann. Rep. Arch. Surv.*, 1903-4, p. 289.
- Gift (*danamukha*) to the monks (*śamana*) of the Community (*saṃgha*) of Four Quarters (*catudīśa*).
6. Chārsadda (now Peshāwar Museum¹) earthen jar² inscription.
- 1904 Text, Marshall and Vogel, *Ann. Rep. Arch. Surv.*, 1902-3, p. 163 and fig. 15 C, and p. 164 and n. 1.
- 1904 Vogel, *Ann. Prog. Rep. Arch. Surv.*, *Panjab and U.P. Circle*, 1903-4, pp. 6-7.
- 1906 Text and translation, Lüders, *Ann. Rep. Arch. Surv.*, 1903-4, p. 291.
- Gift (*danamukha*) of Yaśovata.
7. Chārsadda³ (now Peshāwar Museum, no. 626) pedestal inscription.
- 1904 Text and translation, Marshall and Vogel, *Ann. Rep. Arch. Surv.*, 1902-3, p. 167 and fig. 16.
- 1909 Fleet, *Imperial Gazetteer of India*, Vol. II, p. 5, n. 1.
- Damaged. Gift (*danamukha*) of⁴
8. Chārsadda⁵ pedestal inscription.⁶
- 1904 Text and translation, Marshall and Vogel, *Ann. Rep. Arch. Surv.*, 1902-3, p. 176 and fig. 23.
- 1906 Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 245, no. 14.

The place is 20 miles N.E. of Peshāwar, on the left bank of the Swāt river.

¹ It bears no number. This jar is kept along with nos 4 and 5 (P. M. 413 and 414) in Case G in the Upper Gallery of the Museum.

² In Case G of the Peshāwar Museum there is a fourth earthen jar from Chārsadda. It also probably bore originally a Kharoṣṭhī inscription of which faint traces still remain.

³ From Palatu Dheri, Chārsadda.

⁴ Read: ..[da]śa *danamukhe*. I cannot read *Gadasa* as proposed by Marshall and Vogel.

⁵ From Ghaz Dheri, Chārsadda.

⁶ It was reported to have been in the Peshāwar Museum where it cannot be traced at present.

Fragment. Seems to record a gift in the district (*viśā*) of Puṣkala (*Pukhala*), i.e., Puṣkalāvati.

9. Dewai¹ (Dist. Peshāwar, now Lahore Museum, no. I, 44) inscription of the year 200.

1894 Text and translation, Senart, *Jour. As.*, sér, 9, tome IV, p. 510 and pl. V, no. 34.

Date: Ll. 1—2.—*Sam* 1—1—100 *Veśakhasa masasa divase aṭhame 4-4*.

Gift of a *naga-chatra* (?)²

10. Fatehjang³ (Dist. Rawalpindi, now Lahore Museum, no. I, 3) inscription⁴ of the year 68.

1890 Text and translation, Senart, *Jour. As.*, sér. 8, tome XV, p. 1:0 and pl. opposite p. 138, no. 2.

1891 Cunningham, *Coins of Anc. Ind.*, p. 37.

1892 Smith, *Jour. As. Soc. Beng.*, Vol. LXI, part 1, p. 56.

1893 Smith, *Jour. As. Soc. Beng.*, Vol. LXII, part 1, p. 84.

1904 Boyer, *Jour. As.*, sér. 10, tome III, p. 465.

Date: *Sam* 20—20—20 4—4 *Proṭhavatasa masasa divase sodeśe 10—4—1—1*.

Gift (*danamukha*) of Sahaya, daughter (*dhitira*) of Deva.

11. Hashtnagar⁵ (*Shahr-i-nāpursān*, near Rājār, Dist. Peshāwar, now Lahore Museum no. 1194) pedestal inscription.

1896 Text and translation, Bühler, *Anz. Kais. Ak. d. Wiss.*, Wien, Phil. Hist. Cl., Vol. XXXIII, p. 64 and pl.

1896 Text and translation, Bühler, *Ind. Ant.*, Vol. XXV, p. 311.

1904 Vogel, *Ann. Prog. Rep.*, *Arch. Surv.*, *Panjab and U.P. Circle*, 1903-4, pp. 6-7, no. 1.

1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 244, and pl. LXVII, fig. 1, pl. LXX, fig. 4 and pp. 249-50.

1915 Hargreaves, Foucher's *Notes on Anc. Geog. of Gandhāra* (Trans.), p. 15, n. 1.

Gift (*danamukha*) of the monk (*śamaṇa*) Saṅghamitra, for the gift of health (*aroga-dachina*) to Buddhavarman (Budhoruma).

12. Hashtnagar (Palatu Dheri, near Rājār, now British Museum) pedestal inscription of the year 384.

¹ Mahābān Range, Dist. Peshāwar. For a description of Dewsi see Stein, *Arch. Rep. N.W.F. and Baluchistan*, 1904-5, p. 32.

² Reading extremely doubtful.

³ Same as Chāsa, noticed by Cunningham, *Arch. Surv. Rep.*, vol. XIV, pp. 24-25, now a station on the Rawalpindi-Kohat Railway, 21 miles S. W. of Golra Junction.

⁴ The stone is broken into two pieces. The inscription however is intact.

⁵ It is 18 miles N.E. from Peshāwar. The pedestal is better known as the 'Chārsadda pedestal.'

- 1889 Cunningham's text, V. A. Smith, *Ind. Ant.*, Vol. XVIII p. 257 and facs. [and pl. X.,
 1889 Smith, *Jour. As. Soc. Beng.*, Vol. LVIII, part 1, p. 144
 1890 Senart, *Jour. As.*, sér. 8, tome XV, p. 124.
 1891 Correction, Bühler, *Ind. Ant.*, Vol. XX, p. 394.
 1891 Cunningham, *Coins of Anc. Ind.*, p. 37.
 1892 Smith, *Jour. As. Soc. Beng.*, Vol. LXI, part 1, p. 54.
 1892 Smith, *Ind. Ant.*, Vol. XXI, p. 166.
 1893 Smith, *Jour. As. Soc. Beng.*, Vol. LXII, part 1, p. 85.
 1898 Burgess, *Jour. Ind. Art Indust.*, April, 1898, p. 28, pl. V.
 1899 Senart, *Jour. As.*, sér. 9, tome XIII, p. 530.
 1900 Rapson, *Jour. Roy. As. Soc.*, 1900, p. 389. [n. 1.
 1900 Correction, Bergny, *Jour. Roy. As. Soc.*, 1900, p. 414,
 1900 Burgess, *Jour. Ind. Art Indust.*, Jany., 1900, p. 89.
 1903 Smith, *Jour. Roy. As. Soc.*, 1903, p. 42, n. 2.
 1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 250.
 1913 Waddell, *Jour. Roy. As. Soc.*, 1913, pp. 949, 950.
 1914 Smith, *Early History of India*, 3rd ed., pl. opposite p. 266.

Date: Sam 1—1—1—100 20—20—20—20 4 Proṭhavadasa masasa divasammi pamcami 4—1.

Records only the date.

13. Hidda¹ (near Jālālābād, Afghanistan, now lost) earthen jar inscription of the year 28.

- 1841 Masson, Wilson's *Ariana Antiqua*, pp. 60, 111, 113, and 258 (with an eye-copy opposite p. 262). [144, no. 2.
 1863 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXIII, p. 1863
 1863 Mitra, *Jour. As. Soc. Beng.*, Vol. XXXIII, pp. 152-53.
 1863 Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 230.
 1915 Text and translation, F. W. Thomas, *Jour. Roy. As. Soc.*, 1915, p. 91 and pls. I-II.
 1917 Konow, *Ep. Ind.*, Vol. XIV, p. 136, no. 17.

Date: L.I.—Sambatsarae athaviṃsatihi 20—4—4 mase Apelae sastehi dasahim 10.²

A relic (*śarira*) of the Bodhisattva (Badhosiya) is enshrined (*pratishhapita*) in the Stūpa (*thuva*) called Rājavat (*Rajaramta*) by the overseer (*navakarmia*) Saṃghamitra (*Saghammitra*), for the provision of Nirvāṇa (*nirvana-sabhara*) of all creatures as a result of merit (*kuśala-mula*), the principal share (*agra-pracamsa*) of which falls to the king (*raja*).

14. Jāmālgaṛhi³ (Dist. Peshāwar, now Peshāwar Museum, no. 23) inscription of the year 359.

¹ A village about 5 miles to the south of Jālālābād.

² The name of the month is Apellaios.

³ It is a large village, 9 miles to the north of Mardan. See *Ann. Rep. Arch. Surv. Front. Circ.*, 1915-16, p. 34.

- 1921 Hargreaves, *Ann. Rep. Arch. Surv., Front. Circ.*, 1920-21, pp. 5-6 and p. 21, no. 42.
- 1924 Konow, *Acta Orientalia*, Vol. III, p. 70 and n. 1.
- Date: L. 1.—Sam 1—1—1—100 20—20—10 4—4—1 *Aś-pāśasa padhamammi*.
- A 'jewel' (*radna*), i.e., an image of the Buddha, is established (*prathavida*) by the lay-hearer (*savaa*) Podaka (?), along with his friends (*suhaa*), the Odiliakas.¹
15. **Jāmālgaṛhi** inscription.²
- 1875 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 63.
- 1889 Smith, *Jour. As. Soc. Beng.*, Vol. LVIII, part 1, p. 142.
- 1906 Text, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 244, no. 1 and p. 248.
- A pilaster (*thuna*) by Buddhavarman (Budhavaruma).
16. **Jāmālgaṛhi** inscription.
- 1875 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. V, pp. 63-64 and p. 49, n. 1.
- 1889 Smith, *Jour. As. Soc. Beng.*, Vol. LVIII, part 1, p. 142.
- 1890 Senart, *Jour. As.*, sér. 8, tome XV, p. 132.
- 1892 Smith, *Jour. As. Soc. Beng.*, Vol. LXI, part 1, p. 56.
- 1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 244, no. 2 and p. 248.
- A fruitful (*saphaa*) gift (*danamukha*) [or 'gift of Saphā' according to Konow.]
17. **Jāmālgaṛhi** (?) inscription.³
- Gift (*danamukha*) of the monk (*bhicku*) Buddharakṣita (Budharachita).
18. **Jāmālgaṛhi** (now Peshāwar Museum) inscription on a stone lamp.⁴
- 1921 Hargreaves, *Ann. Rep. Arch. Surv., Front. Circ.*, 1920-21, pp. 5-6 and p. 27, no. 228.
- Fragment. A few letters only.

¹ The above is according to my interpretation. The inscription will be edited by me in the *Epigraphia Indica*. Rai Bahadur Daya Ram Sahni read the name of the month as *Iṣpāita* and Konow suspects that 'the month is Apellaios' and not *Aśvayuja* (*Act. Or.*, Vol. III, p. 70, n. 1). But there are no proper grounds for this suspicion. The reading which is given above is based on photographs and estampages kindly supplied by Mr. Hargreaves, as well as on a personal inspection of the original stone.

² This and the one following were reported to have been in the Indian Museum, Calcutta, where they are not traceable now.

³ I am not sure about the find-spot and place of deposit of this record. I read it from two ink impressions kindly shown to me by Mr. Wasi-ud-din of the office of the Archaeological Survey, Frontier Circle. He informs me that it is from Jāmālgaṛhi and lies at present in the Peshāwar Museum, where, however, it was not traceable during my stay at Peshāwar.

⁴ Lying in a store-room on the upper storey of the Peshāwar Museum. Accession no. 01874.

19. Jāmālgarhi (now Peshāwar Museum) pavement slab inscription.¹

1912 Stein, *Ann. Rep. Arch. Surv., Front. Circ.*, 1911-12, p. v.

Three fragments. Not read.

20. Jāmālgarhi (now Peshāwar Museum, no. 501) pedestal inscription.

1910 Spooner, *Handbook to the Sculptures in the Peshāwar Museum*, p. 60.

1912 Stein, *Ann. Rep. Arch. Surv., Front. Circ.*, 1911-12, p. v.

Gift (*daṇamukha*) 'in honour of all beings' as fee (*dachini*).

21. Kala Saṅg (Khudukhels Territory, N.W.F., now Lahore Museum, no. I, 59) inscription.²

1894 Text and translation, Senart, *Jour. As.*, sér. 9, tome IV, p. 516 and pl. V, no. 36.

Fragment. A well (*kua*) by Pipalakhāa for the Rajjuka (*lajua*) Sava.³

22. Kāldārrā⁴ (near Dargāi, N.W.F., now Lahore Museum, no. I, 77) inscription of the year 113.

1896 Text and translation, Bühler, *Wien. Zeits. Kund. Morg.*, Vol. X, p. 55 and p. 327.

1896 Bühler, *Ind. Ant.*, Vol. XXV, p. 141.

1899 Text and translation, Senart, *Jour. As.*, sér. 9, tome XIII, p. 533 and pl.

1900 Burgess, *Jour. Ind. Art and Indust.*, 1900, p. 89.

1903 Smith, *Jour. Roy. As. Soc.*, 1903, p. 41.⁵

1907 Correction, F. W. Thomas, *Ep. Ind.*, Vol. IX, p. 147 ('Additional Notes,' no. 2).

1908 Text and translation, Banerji, *Ind. Ant.*, Vol. XXXVII, p. 66 and pl.

1909 Lüders, *Jour. Roy. As. Soc.*, 1909, p. 652.

Date : L. 3.—*Vasa* 1—100 10—1—1—1 *Śravanasa* 20.

A tank (*pukaraṇi*) is excavated (*karavita*) by Theodoros (Thaidora),⁶ son of Dati.

¹ Lying in a store-room on the upper storey of the Museum. Accession no. 01873. The slab contains a number of holes, which were intended, as Mr. Hargreaves rightly suggests, to hold offerings of coins, a custom that continues even to the present day. A pavement slab, with a copper coin of Vāsudeva in one of its holes, has actually been found at Jāmālgarhi.

² Found near Cherorai on Mahāban Mt.

³ M. Senart reads: *Yavana-pipalakhāa bhuho eduka-savaṇa*. I read: *-yatana Pipalakhāa kue lajua-Sava. sa*.

⁴ Or Kāldāra Nadi, near Mālākānd Pass on the way to Chitral.

⁵ Smith's mention that it contains reference to a Kuṣān king is evidently a mistake.

⁶ Cf. no. 65.

23. **Kanhira**¹ (Dist. Kāngrā, Punjab) rock inscription.²
 1854 Text and translation, Bayley, *Jour. As. Soc. Beng.*, Vol. XXIII, p. 57 and pl. I.
 1855 Weber, *Zeits. d. Deutsch. Morg. Gess.*, Bd. IX, p. 630.
 1858 E. Thomas, Prinsep's *Essays on Indian Antiquities*, Vol. I, p. 159 and pl. IX.
 1863 Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 254 and pl. IX.
 1875 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 175 and pl. XLII. [and pl.
 1902 Text and translation, Vogel, *Ep. Ind.*, Vol. VII, p. 116
 The grove or monastery (*arama*) of Kṛṣṇayaśas (Kṛṣṇamīyāsa).
 24. **Karnal** (Punjab, now Lahore Museum, no. 1, 89) inscription.
 Fragment. Records probably the excavation of a tank (*pukara*). Begins with the word *sidhi* (*siddhi*) i.e., 'Perfection.'
 25. **Khalatse** (Western Tibet) rock inscription of the year 187.³
 1907 A. H. Francke, *A History of Western Tibet*, p. 36.
 1911 Marshall, *Jour. Roy. As. Soc.*, 1911, p. 143.
 1914 A. H. Francke, *Ann. Rep. Arch. Surv.*, 1909-10, p. 104 and n. 1.
 1916 Date read by Rapson, A. H. Francke's *Antiquities of Indian Tibet*, p. 94 and n. 1.
 Date: L. 1.—*Saṃ* 1—100 20—20—20—20 4—3.⁴
 Nothing beyond the date has been clearly read. Probably mentions a *mahārāja* (*maharaja*).
 26. **Kurram Valley** (N.W.F.) relic casket inscription.⁵
 1918 Aiyar, *Ann. Rep. Arch. Surv.*, *Front. Circ.*, 1917-18, p. 2.
 Establishes (*patihavedi*) a corporeal relic (*śarira*) of the Lord (*bhagavā*) Śākyamuni (*Śakyamuni*) and further mentions that (the casket) belongs to the preceptors (*acaryas*) of the Sarvāstivādin (*sarvastivadi*) school.
 27. **Lahore Museum** (no. 25) inscription⁶ on the broken halo of a Buddha image.

¹ A village 12 miles to the north of Kangra.—*Arch. Surv. Rep.*, Vol. V, p. 175.

² The rock contains also a Brāhmī version of the same inscription. See Lüders, *List of Brāhmī Inscr.*, no. 8.

³ The place is 50 miles below Leh in Ladakh. The inscription is *in situ* at Khalatse.

⁴ The reading has been checked from a photograph (*Frontier Circle*, 1909-10, no. 187).

⁵ It is incised on a Stūpa-shaped copper reliquary in the possession of a Pāthān, at Landi, 2 miles from Peshāwar. There are photographs of it in the *Frontier Circle Office* (Photo. nos. 1685-1689). No text has yet been published.

⁶ Provenance not known.

- 1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 244, no. 3, p. 249 and pl. LXVI, fig. 2.
Fragment. (*Gift*) of Bosavaruma.
28. **Lahore Museum** (no. 206) inscription¹ on Buddha's writing board.
1904 Text and translation, Boyér, *Bull. Ec. Fran. Ex. Orient*, Vol. IV, p. 685.
1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 244, no. 4, p. 246 and pl. LXVI, no. 1.
Five letters (*sa-pa-ra na-ta*) only.²
29. **Lahore Museum** (L. M. 679) pedestal inscription.
1898 Burgess, *Jour. Ind. Art and Indust.*, Vol. VIII, no. 62 (April 1898), pl. XIII, 4.
1906 Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 244, no. 5.
Letters effaced.
30. **Loriyān Tāngāi**³ (now Indian Museum, no. 4995) pedestal inscription.
1906 Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 245, no. 11, pl. LXX, 7 and p. 254.
Gift (*danamukha*) of Amohaka.
31. **Loriyān Tāngāi** (now Indian Museum, no. 5095) pedestal inscription.
1906 Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 245, no. 10 and p. 254 and pl. LXX, 6.
1911 Text and translation, Bloch, *Suppl. Cat. Arch. Coll. Ind. Mus.*, p. 34.
Gift (*danamukha*) of Sihamitra and Sahilaa.
32. **Loriyān Tāngāi** (now Indian Museum, no. 4871) pedestal inscription.
1906 Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 245, no. 9, and p. 253 and pl. LXX, 8.
1911 Bloch, *Suppl. Cat. Arch. Coll. Ind. Mus.*, p. 33.
Gift (*danamukha*) of Buddhamitra (Budhamitra) and Buddharaksita (Budharachida).
33. **Loriyān Tāngāi** (now Indian Museum, no. 4901) pedestal inscription of the year 318.
1896 Hærnle's text and translation, A Caddy's *Report to the Government of Bengal*,⁴ pp. 10-11.
1898 Hærnle, *Proc. As. Soc. Beng.*, 1898, p. 60.
1899 Text and translation, Senart, *Jour. As.*, sér. 9, tome XIII, p. 528 and pl.
1900 Burgess, *Jour. Ind. Art and Indust.*, Vol. VIII, no. 69, p. 89.
1900 Rapson, *Jour. Roy. As. Soc.*, 1900, p. 389.

¹ Provenance not known.

[no. 56.]

² They have been taken as standing for *sa-pa-raṇa hita*. Cf. below³ It is on the northern slope of Shāhkot Pass, Swāt Valley, N.W.F.⁴ It is dated "Chakdara, the 13th May, Mansahera, the 18th July, 1896."

- 1903 Smith, *Jour. Roy. As. Soc.*, 1903, p. 14, no. 74.
 1905 Vogel, *Ann. Prog. Rep. Arch. Surv., Panjab and U.P. Circle*, 1904-5, pp. 20-21, no. 106.
 1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 245, no. 8, p. 251 and p. 253 and pl. LXX, 5.
 1911 Text and translation, Bloch, *Suppl. Cat. Arch. Coll. Ind. Mus.*, p. 35.
 1922 Text and translation, N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S. Vol. XVIII, p. 63 and pl. IV.
 1922 Foucher, *L'art Greco-Bouddhique du Gandhāra*, Vol. II, part II, p. 490.
 Date: L. 1.—*Sa* 1—1—1—100 10—4—4 *Proṭhavadasa* dī 20 4—1—1—1.

Gift (*danamukha*) of Buddhaghōṣa (Budhaghōṣa) (and) Saṃghavarman (Saghoruma).

34. **Mahāban**¹ (Mt. Banj, N.W.F., now Lahore Museum, no. I. 42) inscription of the year 102²
 1894 Text and translation, Senart, *Jour. As.*, sér. 9, tome IV, p. 513 and pl. V, no. 35.
 1922 Text and translation, N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S., Vol. XVIII, p. 65 and pl. V.
 Date: L. 3.—*Samvatkaraye* 1—100 1—1.

Gift (*danamukha*) of a well (*kua*) by Vajra (Vayira), son of Mārkaṇḍaka (Makaḍaka).³

35. **Maira** ('nearly off the Salt Range', N.W.F., now Lahore Museum, no. I, 109) well inscription of the year 58.
 1875 Text, Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 94 and pl. XXVIII (A, B, C, D).
 Date: *Sam* 20—20—10 4—4 *Cetrasa* 4⁴

Four fragments. Damaged. Letters effaced. Records probably the excavation of a well.

¹ For a detailed description of Mahāban see Stein, *Arch. Surv. Rep.*, N.W.F. and Baluchistan, 1904-5, p. 19 ff. The mountain is on the Indus about 70 miles E.N.E. from Peshāwar (Smith, *Jour. Roy. As. Soc.*, 1906, p. 739).

² Found *in situ* at the foot of a wall, entrance to an old fort on Mt. Banj.

³ The inscription reads as follows: (L. 1) *danamukho* (L. 2) *Makaḍa-ka-putrasa Vayira(sa)*.... (L. 3) *samvatkaraye* 1—100 1—1 *kua*. In 1894 M. Senart read the last word of line 3 as *bhu-ho* and offered a rather fanciful interpretation; in 1922 I corrected it as *bhuo* (= *bhūta*), i.e., 'finished.' Professor Sten Konow however suggested to me in a letter that the proper reading in his opinion would be *kua* (= *kūpa*). The slightly damaged portion after *Vayira* I restored formerly as *-sa thūvo* on the basis of inked estampages that were at my disposal. This also Professor Konow did not accept. Again he would prefer taking line 1 as continuation of line 3. After a careful examination of the original stone it now appears to me that too much credence was placed on estampages and that Prof. Konow's interpretation can alone be regarded as correct.

⁴ This is the reading of Cunningham who found the inscription at its original site (1872-1873). It was subsequently removed to the Lahore Museum and it seems that it has been considerably damaged

36. **Mānikialā**¹ (Dist. Rawalpindi, now Bibliotheque Nationale, Paris) inscription of the year 18 of Kaniska.
 1834 Lithograph, J. Prinsep, *Jour. As. Soc. Beng.*, Vol. III, p. 563 and pl. XXXIII, no. 5.
 1844 H. T. Prinsep, *Note on the Historical Results deducible from Recent discoveries in Afghanistan*, pl. "Arian inscription from Manikiala Tope."
 1854 Text, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXIII, p. 703.
 1863 Text, Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 250 and pl.
 1863 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXIII, p. 144, no. 1.
 1871 Cunningham, *Arch. Surv. Rep.*, Vol. II, p. 160 and pl. LXIII.
 1896 Text and translation, Senart, *Jour. As.*, sér. 9, tome VII, p. 1 and pls.
 1909 Text and translation, Lüders, *Jour. Roy. As. Soc.*, 1909, p. 645.
 1913 Lüders, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1913, pp. 421-423.
 1914 Text and translation, Pargiter, *Jour. Roy. As. Soc.*, 1914, p. 641.
 1914 Konow, *Zeits. d. Deutsch. Morg. Gess.*, Bd. 68, p. 98.
 1914 Fleet, *Jour. Roy. As. Soc.*, 1914, p. 373 and pl. opposite p. 378, and p. 1003.
 1914 Staël-Holstein, *Jour. Roy. As. Soc.*, 1914, p. 757.
 1916 Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 795 and p. 798, n. 4.
 1922 Correction, N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S. Vol. XVIII, p. 67.
 Date: Ll. 2-3.—*Sam* 10—4—4 *etra purvae maharajasa Kaneskasa*. L. 13.—*Kartiyasa majha-divase* 20.

Not yet clearly interpreted. Seems to record some meritorious work by the Satrap (*Chatrapa*) of Vespaśi (Viśvasi), named Horamurta,² in his own (*apanaga*) monastery (*vihara*). Mentions also the following names: Khufacia of Vespaśi, Buritra, the Superintendent of Monastery (*vihara-karajaa*), Lala, the Commander-in-

since he noticed it. The text is now impossible to restore; but sufficient traces of a date remain which seem to justify his reading of the figure as 58.

¹ Now a station on the North-Western Railway, 16 miles S.E. of Rawalpindi.

² Cf. three Mathurā inscriptions (Lüders "Add. & Corr." Nos. 127, 128, 141) recording the gift of a Viśvasika Vakamihira and his son Horamurudata(?). For the name Horamurta see Lüders, *Sitz. Kön. Ak. d. Wiss.*, 1913, p. 421 and Konow, *Zeits. d. Deutsch. Morg. Gess.*, Bd. 68 (1914), p. 98. Lüders takes *viśvasika* as an official designation.

chief (*dadānayaga*), of the Gusana (*Kuṣāṇa*)¹ family, and Svarabudhi and Saṁdhabudhila, two brothers.

37. *Mānikīālā* (now British Museum) inscription on a bronze casket

1834 Lithograph, J. Prinsep, *Jour. As. Soc. Beng.*, Vol. III, pl. XXII, no. 20 opposite p. 318. [p. 331.]

1834 Letter of Masson, *Jour. As. Soc. Beng.*, Vol. III,

1844 H. T. Prinsep, *Note on the Historical Results deducible from Recent discoveries in Afghanistan*, pl. XV, 20, a-b.

1845 Cunningham, *Jour. As. Soc. Beng.*, Vol. XIV, part 1, p. 432.

1854 Text and translation, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXIII, p. 699, pl. XXXV, fig. 24

1858 J. Prinsep's *Essays on Ind. Ant.*, Vol. I, p. 96 and pl. VI, 20, a-b.²

1858 E. Thomas, Prinsep's *Essays on Ind. Ant.*, Vol. I, pp. 98-99.

1863 Text and translation, Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 246.

1873 Cunningham, *Arch. Surv. Rep.*, Vol. II, pp. 161-162 and pl. LXIII, no. 1.

1913-14 Text and translation, Pargiter, *Ep. Ind.*, Vol. XII, pp. 299-300 and pl.

1916 Correction, Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 798.

1921 Correction, Konow, *Ep. Ind.*, Vol. XIV, p. 287, n. 3.

Gift (*daṇamukha*) of the Satrap (*Chatrapa*) of Kaviśi (*Kāpiśi*), son of the Satrap (*Chatrapa*) Granafaka.

38. *Mānikīālā* (now British Museum) inscription on a silver plate.

1834 Lithograph, J. Prinsep, *Jour. As. Soc. Beng.*, Vol. III, pl. XXII, no. 26 and p. 319.

1844 H. T. Prinsep, *Note on the Historical Results deducible from Recent Discoveries in Afghanistan*, pl. XV, 26.

1845 Cunningham, *Jour. As. Soc. Beng.*, Vol. XIV, part 1, p. 431.

1854 Text and translation, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXIII, p. 701.

1854 Cunningham, *Bhīla Topes*, p. 12.

1858 E. Thomas, Prinsep's *Essays on Ind. Ant.*, Vol. I, p. 103 and pl. VI, 26 (same as in H. T. Prinsep's *Note*.)

1863 Dowson, *Jour. Roy. As. Soc.*, Vol. XX, pp. 246-248.

1871 Cunningham, *Arch. Surv. Rep.*, Vol. II, p. 160 and pl. LXIII, no. 1.

¹ For the correct form of the name cf. A. von Stael-Holstein, *Sitz. Kön. Ak. d. Wiss.*, 1914, p. 643 and *Jour. Roy. As. Soc.*, 1914, pp. 79 and 754; Fleet, *Jour. Roy. As. Soc.*, 1914, p. 369; Allan, *ibid.*, p. 403; and Konow, *Zeits. d. Deutsch. Morg. Ges.*, 1914, p. 95.

² Same as H. T. Prinsep, *Note etc.* (1844), pl. XV. 20, a-b.

- 1913-14 Text and translation, Pargiter, *Ep. Ind.*, Vol. XII, p. 301 and pl. (B) opposite p. 299. [n. 3.]
- 1916 Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 798, Gomana, a Superintendent (*Karapaka*).
39. **Mānsehrā** (Hāzārā Dist.) Rock Edicts of Aśoka.¹
- 1888 Text and translation, Senart, *Jour. As.*, sér. 8, tome XII, p. 319 ff (Edicts I–XI), p. 511 ff (Edict XII) and pls. I–III (facsimiles of Edicts I–XII).
- 1889 Text and translation, Bühler, *Zeits. d. Deutsch. Morg. Gess.*, Bd. XLIII, p. 273 ff (Edicts I–XII).
- 1909 Text and translation (reprint from *ZDMG.*), Bühler, *Beit. Zur. Erklärung d. Aśoka-Inschriften*, p. 201 ff.
Rock Edicts I–XII of Aśoka.
40. **Mānsehrā** (now Indian Museum, Calcutta, no. 5558) inscription.
Fragment. Not read.
41. **Mārguz** (Swābi, Dist. Peshāwar) marble slab inscription.²
- 1914 Wasi-ud-Din, *Ann. Rep. Arch. Surv., Front. Circ.*, 1913-14, p. 2.
Fragment. Excavation of a well (*kua*) by Sahaya (?).....
42. **Mathurā** (United Provinces, now British Museum) Lion-Capital inscription.
- 1890 Cunningham, *Coins of the Sakas, Num. Chron.*, Vol. X, (ser. III), p. 123.
- 1891 Cunningham, *Academy*, 1891, April 28, p. 397.
- 1894 Text and translation, Bhagwanlāl Indrāji (ed. Bühler), *Jour. Roy. As. Soc.*, N.S. Vol. XXVI, p. 525.
- 1894 Bhagwanlāl Indrāji (ed. Rapson), *Jour. Roy. As. Soc.*, N.S. Vol. XXVI, p. 542.
- 1904 Fleet, *Jour. Roy. As. Soc.*, 1904, p. 703.
- 1905 Fleet, *Jour. Roy. As. Soc.*, 1905, p. 154.
- 1906 F. W. Thomas, *Jour. As. Roy. Soc.*, 1906, p. 212.
- 1906 Smith, *Zeits. d. Deutsch. Morg. Gess.*, Bd. LX, p. 51.
- 1907 Text and translation, F. W. Thomas, *Ep. Ind.*, Vol. IX, p. 135 and pls.
- 1907 Fleet, *Jour. Roy. As. Soc.*, 1907, p. 1013. [404 ff.]
- 1907 Smith, *Zeits. d. Deutsch. Morg. Gess.*, Bd. LXI, p.
- 1907 Barth, *Compt. Rend. Sean. Acad. Inscr. Bell.-Lett.*, p. 384.
- 1908 Ditto (English translation), Tamson, *Ind. Ant.*, 1908, p. 245.

¹ *In situ* at Mānsehrā. The place is situated on the right bank of an affluent of the Siran, north of Abbottabad, and on the main road from Taxila to the Kāshmir border. (*Imp. Gaz.*, Vol. XVII, p. 203). The inscriptions are near the base of a hill named Bareri.

² From a mound on the Indus, now with a Muhammadan goldsmith at Marguz. Read: (L. 1)....[10-4] 1-1-1 *kua Saha[ya]* (L. 2) *darana*. There is a photo-negative in the Archaeological Survey office at Peshāwar.

- 1913 Fleet, *Jour. Roy. As. Soc.*, 1913, p. 1001 and n. 3, and p. 1009.
- 1913 Barnett, *Jour. Roy. As. Soc.*, 1913, p. 945.
- 1913 Lüders, *Sitz. Kön. Ak. d. Wiss.*, 1913, pp. 415-121.
- 1914 Rapson, *Ancient India*, p. 158 and pl. IV opposite p. 142 and pl. V, B opposite p. 150.
- 1914 Marshall, *Jour. Roy. As. Soc.*, 1914, p. 985.
- 1916 Text and translation, Konow, *Sitz. Kön. Ak. d. Wiss.*, 1916, p. 796.
- (A) Enshrinement for the eternal (*śaśpaa*) . . . of a corporeal relic (*śarira*) of the lord (*bhagravata*) Śākyamuni (Sakamuni) Budha (Buddha) in a Stūpa (*nisima*), and gift of the Stūpa (*thuva*) and a Saṃghārāma (*Sagharama*) to the Sarvāstivādin (*Sarvastivata*) sect by the chief queen (*agra-maheṣi*) of the Mahākṣatrapa (*Mahachatrava*) Rajula, mother of the Crown-prince (*yuvaraya*) Kharaosta, Nadasi-Akasa (by name), together with her mother (*mata*) Abuhola, her paternal grandmother (*pīramahī*) Pispasi, her brother Hayuara, daughter (*dhitra*) Hana, her household (*atraūra*) and following of Horakas (*horaka-parivara*). For the acceptance (*parigraha*) of the Saṃgha of Four Quarters (*sagha catudīśa*) of the Sarvāstivādin (*Sarvastivata*) sect.
- (B) The Kṣatrapa (*Chatrava*) Śudasa, son of the Mahākṣatrapa (*Mahachatrava*) Rajula (Vajula).
- (C) Kalui, a younger brother (*avaraṇa*) of . . .
- (D) Naūluda.
- (E) The Crown-prince (*yuvaraya*) Kharaosta, Khalamasa, the Kumāra and Maja, the youngest (*kanīṭha*)
- (E') Kamuia.
- (E'') Illegible.
- (F) Budhila, a monk (*bhikhu*) from Nagara (Nakrara), who is a Sarvāstivādin (*Sarvastivata*). Cf. no. 42 (N).
- (G) The Mahākṣatrapa (*Mahachatrava*) Kusulaa Padika and the Kṣatrapa (*Chatrava*) Mevaki Miyika.
- J (3) For the acceptance (*parigraha*) of the Sarvāstivādin (*Sarvastivata*) sect.
- (M) The Kṣatrapa (*Chatrava*) Śudisa.
- (I) Illegible. The Skandhāvāra (*kadhavara*.)
- J (1 & 2) Worn out and partly illegible. A Stūpa (*nisima*) is made (*karita*) and given away (*niyatita*).
- (J') Khalaśamuśa.
- (K & L) The elevation (*utaa*) of the preceptor (*ayaria*) Buddhadeva (Budhateva), Ayimisa.
- (H) The 'Cave-monastery' (*Guha-vihara*).
- (H') 'pious gift' (*dhama-dana*).
- (N)¹ The Sarvāstivādin (*Sarvastivata*) preceptor (*ayaria*)

¹ Cf. no. 82 and no. 42(F).

- Budhila, a monk (*bhikhu*) from Nagara (Nakrara). The Mahāsāṃghika (*Mahasāṃghia*) sect.¹
- (O) Honour (*puya*) to 'All Buddhas (*Budha*)', Dharma (*Dhama*) and Saṃgha (*Sagha*).
- (P) Honour (*puya*) to the whole (*sarva*) Śakra-sthāna (Sakra-sthana), i.e., 'the place of Indra.'²
- (Q) The Kṣatrapa (*Chatrava*) Khardaa.
- (R) Rachila (?), a Kronina (?)
43. Muchāi (Dist. Peshāwar, now Lahore Museum, no. I, 46) inscription³ of the year 81.
1908 Text and translation, Banerji, *Ind. Ant.*, Vol. XXXVII, p. 64 and pl. II.
1909 Correction, Lüders, *Jour. Roy. As. Soc.*, 1909, p. 664, n. 2.
Date: L. 1.—*Vase ekaśitimae 20—20—20—20 1*.
A well (*kua*) by Sahayara (and) Vaśiśuga (or by Sahayara from Vaśiśuka).
44. Naugrām* (Khudukhels Territory, N.W.F., now Lahore Museum, no. I, 154).
1906 Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 250, n. 2.
Fragment. (*Gift*) for the bestowal of good health (*aroga-dachina*) of⁵
45. Nowshera (Dist. Peshāwar) inscription on the pedestal of a Buddha image.⁶
1913 Wasi-ud-din, *Ann. Rep. Arch. Surv., Front. Circ.*, 1912-13, p. iii. Not read.
46. Pājā (Dist. Peshāwar, now Lahore Museum, no. I, 47) inscription⁷ of the year 111.
1908 Text and translation, Banerji, *Ind. Ant.*, Vol. XXXVII, p. 64 and pl. II.

¹ The meaning of ll. 3-4 is very doubtful.

² In no. 42(O), which is inscribed just above no. 42(P), 'honour' (*pūjā*) is shown to the Tri-ratna—Buddha, Dharma and Saṃgha, and in the latter, to the place of Śakra, (i.e., where the gods dwell), which means honour to all the gods. Thus if we take nos. O and P together a rational interpretation may be obtained. The reading *Sakra* is admittedly clear; to restore it as *Saka*, unless we are specially justified, is quite arbitrary. *Sakkatthāna* is well known from Buddhist literature. See e.g., *Jātaka Text*, Vol. IV, p. 242. The passage has been, however, generally taken to mean *Saka-sthāna* or Seistan.

³ It was 'found lying in a Hujra', i.e., 'a cell for religious purposes.'

⁴ It is 22 miles to the east of Mardān and 16 miles to the north of Ohind.—*Arch. Surv. Rep.*, Vol. V, p. 55.

⁵ The words *la 1* towards the end of the inscription remind one of a similar expression in the Āra inscription (see no. 1 above).

⁶ Its present whereabouts are not known. It was originally with a regiment stationed at Nowshera (N.W.Ry.). Frontier Circle photo no. 1373.

⁷ Found on a small mound in a field about $\frac{1}{4}$ mile from the village of Pājā.

Date : L. 1.—*Samvatsaraye ekadaśa-[śa]ṭi-maye 1—100 10—1 Śraṇasa masasa di(va)se pacadaśe 10—1—1.*

A well (*kua*) is excavated by Saṅghamitra (Saṅga-mitra), son of Ānanda (Ānanda).

47. **Panjtār**¹ (Dist. Peshāwar, now lost) inscription of the year 122.

1854 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXIII. p. 705 and pl. opposite p. 705, fig. 4.

1863 Cunningham, *Arch. Surv. Rep.*, Vol. V. p. 61 and pl. XVI, no. 4.

1903 Smith, *Jour. Roy. As. Soc.*, 1903, p. 41.

1914 Fleet, *Jour. Roy. As. Soc.*, 1914, p. 372, pl. opposite p. 378, and p. 1002.

1914 Staël-Holstein, *Jour. Roy. As. Soc.*, 1914, p. 758.

1916 Text and translation, Konow, *Sitz. Kön. Ak. d. Wiss.*, 1916, p. 802.

1917 Text and translation, Konow, *Ep. Ind.*, Vol. XIV. p. 134.

Date : L. 1.—*Sam 1—100 20—1—1 Śraṇasa masasa di pradhane 1 maharajasa Gusanaśa raja[mi.]*

Gift (*dana*) of money (*tanika*) at the temple of Śiva (*Śiva-thala*) constructed (*karavida*) by Moika, son of Urumuja, to the east (*praca*) of Kasua.²

48. **Pathyar** (Dist. Kāngrā, Punjab) rock inscription.³

1902 Text and translation, Vogel, *Ep. Ind.*, Vol. VII, p. 116 and pl.

The tank (*pukarini*) of Rathitara (Rathidara) Vayula.

49. **Peshāwar Museum** inscription,⁴ no. 1.

Fragment; 2 lines, cursively written. Not read.

50. **Peshāwar Museum** inscription,⁵ no. 3.

Fragment; 2 letters only.

51. **Peshāwar Museum** inscription,⁶ no. 7.

Fragment; 2 lines of which there remain 3 letters only.

52. **Peshāwar Museum** inscription,⁷ no. 4.

Fragment. 'Establishes (*pratiḥavedi*).....a gift (*danamukha*)....'

53. **Peshāwar Museum** inscription,⁸ no. 5.

Fragment. 'Caused to be made (*karavida*)....'

¹ From Salimpur, near Panjtār.

² The last portion of the text is not very clear; no sure interpretation is therefore possible.

³ There is also a Brāhmī version of the inscription on the same rock. See Lüders, *List of Brāhmī Inscr.*, no. 9.

⁴ Actual provenance unknown. It comes from the Khudu Khel Territory.

⁵ Provenance unknown.

⁶ Provenance unknown.

⁷ Actual provenance unknown. It comes from the Khudu Khel Territory.

⁸ Provenance unknown.

54. Peshāwar Museum inscription, no. 20, of the year 168.¹
1917 Aiyar, *Ann. Rep. Arch. Surv., Front. Circ.*, 1916-17, p. 6.
Date: L. 1.—*Sam* 1—100 20—20—20 4—4 *Jeṭha-mase divase*
pamcadas(e).

A well (*kua*) is excavated (*khanavida*) within a Vihāra, (*viḥara*) being a gift (*danamukha*) of Agasahaya, the father-in-law (*śasura*) of Trapā (Trava).

55. Peshāwar Museum inscription, no. 21.²
1917 Aiyar, *Ann. Rep. Arch. Surv., Front. Circ.*, 1916-17, p. 6.

Damaged. A well is excavated (*khanavida*) by Vasudeva, son of Imṛadeva (Itradeva) and... of Kṣemadeva (Khemadeva), an inhabitant (*vasthava*) of....

56. Peshāwar Museum inscription on a Gandhāra sculpture (no. 347) representing Buddha in school.

1910 Spooner, *Handbook to the Sculptures in the Peshawar Museum*, p. 9.³

Five letters on the writing-board in the hands of Gautama.

57. Saddo⁴ (Swāt, N.W.F. Province) rock inscription.

1875 Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 62.

Not fully read. Five letters read by Cunningham as: *masa cetra di (vase)*, show that it was a dated inscription.

58. Shāhbāzgarhi (Dist. Peshāwar), Rock-edicts of Aśoka.⁵

1836 Court, *Jour. As. Soc. Beng.*, Vol. V, p. 481.

1845 Masson, *Jour. Roy. As. Soc.*, O.S., Vol. VIII, p. 293 and pls. 1-2; and pl. (Edict VII) facing p. 302.

1845 Text of Edict VII, E. Norris, *Jour. Roy. As. Soc.*, O.S., Vol. VIII, p. 306.

1845 Text of Edict VII, H. H. Wilson, *Jour. Roy. As. Soc.*, O.S., Vol. VIII, p. 308.

1875 Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 9.

1877 Cunningham, *Corpus Inscriptionum Indicarum*, Vol. I, p. 8 ff.; and text and translation, p. 65 ff.

¹ Provenance unknown, probably somewhere in Peshāwar district. The stone was found by me along with no. 21, in the store-room on the upper storey of the Peshāwar Museum, with a label, "Presented by Sir Aurel Stein on 4-7-16."

² Provenance unknown. Labelled, "Presented by Sir Aurel Stein." Evidently it contained a date in line 1, the remnants of which are *masasa di ṣa chunammi*.

³ Spooner describes the sculpture, but does not mention the letters. Cf. a similar piece in the Lahore Museum (above, no. 28). Probable reading: *parana [hi]da*, i.e., "good of others".

⁴ It is a village situated on the eastern bank of the Panjkora river in Swāt.—*Arch. Surv. Rep.*, Vol. V, p. 62.

⁵ *In situ* at Shāhbāzgarhi which is 8 miles to the east of Mardan. The inscriptions are at the foot of a hillock half a mile south-east of the village. See *Ann. Rep. Arch. Surv., Front. Circ.*, 1915-16, p. 36.

- 1881 Text (Edict I), Bhagwanlāl Indrāji, *Ind. Ant.*, Vol. X, p. 107.
- 1883 Text (Edict VIII), Bhagwanlāl Indrāji, *Jour. Bo. Roy. As. Soc.*, Vol. XV, p. 284 ff.
- 1888 Text and translation (Edict XII), Bühler, *Ep. Ind.*, Vol. I, p. 16 and pl. (Edict XII).
- 1889 Text and translation, Bühler, *Zeits. d. Deutsch. Morg. Gess.*, Bd. XLIII, p. 128 and pl. (Edict VII). [p. 8.
- 1892 Text and translation, Senart, *Ind. Ant.*, Vol. XXI.
- 1893 Language, Johansson, *Actes du Huitieme Congres Int. Orient.* (1889), Part III, Section II, pp. 118-190.
- 1904 Language, Grierson, *Jour. Roy. As. Soc.*, 1904, p. 725
- 1909 Text and translation (reprint from ZDMG.), Bühler, *Beit. zur Erk. Asoka-Inschriften*, p. 152 ff.
- 1913 Correction, Hultzsch, *Jour. Roy. As. Soc.*, 1913, p. 653.
- Rock-edicts I-XIV of Asoka.
59. Shāh-ji-ki-dheri (near Peshāwar City) Stūpa inscriptions (now Peshāwar Museum, nos. 484-493) on glazed bricks.¹
Ten fragments containing many letters. No. 484 mentions the name 'Budhasena'.
- ✓ 60. Shāh-ji-ki-dheri² (now Peshāwar Museum, no. 452) bronze casket inscriptions of the time of Kaniska.
1908-9 Spooner, *Ann. Rep. Arch. Surv.*, *Front. Circ.*, 1908-9, p. 19.
1909 Marshall, *Jour. Roy. As. Soc.*, 1909, p. 1058 and pl. II.
1909 Foucher, *Jour. As.*, sér. 10, tome XIV, p. 198 and p. 371.
1911 Smith, *History of Fine Art in India and Ceylon*, p. 358 and pl. LXXV, figs. A and B.
1912 Spooner, *Ann. Rep. Arch. Surv.*, 1908-9, p. 51.
1914 Text and translation, Spooner, *Ann. Rep. Arch. Surv.*, 1909-10, p. 135 and pls. LII-LIII.
Pious gift (*deya-dharma*) for the acceptance (*parigraha*) of the preceptors (*acarya*) of the Sarvāstivādin (*Sarvastivādī*) sect, in the Kaniska Vihāra (*vihāra*) and Mahāsena Saṃghārāma (*Mahasena saṃgharama*). The servant (*dasa*) Agisala,³ Superintendent of works (*navakarmī*).
61. Shākārdārrā (near Cambellpur, Punjab, now Lahore Museum, no. I, 142) inscription⁴ of the year 40.

¹ Excavated in 1908-9.

² This is the site where once the famous Kaniska Caitya stood. The mound concealing its ruins was correctly identified by M. Foucher (*Notes on the Anc. Geogr. of Gandhāra*, p. 10), and later on most successfully excavated by the Archaeological Department in 1908-9. The inscriptions on the casket are as follows:—(a) on the lid; (b) in the band decorating the lower edge of the lid; (c) in the second band between the heads of the figures; and (d) between the feet of the figures.

³ Greek 'Agasilas.'

⁴ Found in an old well at Shākārdārrā, eight miles to the south of Attock.

- 1898 Text and translation, Bühler, *Anz. Kais. Ak. d. Wiss., Phil. Hist. Cl., Wien*, Vol. XXXV, p. 16 and pl. (p. 15).
- 1898 Rhys Davids, *Jour. Roy. As. Soc.*, 1898, p. 461.
- 1908 Text and translation, Banerji, *Ind. Ant.*, Vol. XXXVII, p. 66 and pl.
- 1916 Text and translation, Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 795, n. 1.
- 1922 Text and translation, N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S. Vol. XVIII, p. 61 and pl.
- Date: Ll. 1-2.—*Sam 20—20 Poṭhavadasa masasa divas[e] viṣami di 20.*
- A well (*kova*) is excavated (*khadaa*) by Troṇivadra,¹ in the town (*nikama*) of....
62. **Siddāpur** (Mysore) colophon of Aśoka's Minor edicts.²
- 1893 Bühler, *Wien. Zeitsch. Kund. Morg.*, Vol. VII, p. 32.
- 1894-95 Text and translation, Bühler, *Ep. Ind.*, Vol. III, pp. 140, 141, and pls. opposite p. 140 and p. 138.
- 'Written by the scribe (*lipikara*) Pada'.
63. **Skārrā Dheri**³ (near Chārsadda, Dist. Peshāwar, now Lahore Museum, no. 1625) Hārītī image inscription of the year 179.
- 1903 Text and translation, Stratton, *Jour. Am. Or. Soc.*, Vol. XXIV, part 1, p. 4 and figs. 1-2.
- 1904 Vogel, *Ann. Prog. Rep., Panjab and U.P. Circle*, 1903-4, pp. 50-53.
- 1904 Text and translation, Boyér, *Bull. Ec. Fran. Ex. Or.*, Vol. IV, p. 680.
- 1906 Text and translation, Vogel, *Ann. Rep. Arch. Surv.*, 1903-4, p. 255 and pl. LXX, no. 9.
- 1907 Fleet, *Jour. Roy. As. Soc.*, 1907, p. 184.
- 1912 Fleet (quoted by Kennedy), *Jour. Roy. As. Soc.*, 1912, p. 686, n. 1.
- 1913 Fleet, *Jour. Roy. As. Soc.*, 1913, p. 985 and n. 1, and p. 986 and n. 2.
- 1913 F.W. Thomas, *Jour. Roy. As. Soc.*, 1913, p. 1034, n. 6.
- 1917 Konow, *Ep. Ind.*, Vol. XIV, p. 136, no. 12.
- 1920 Banerji, *Jour. Roy. As. Soc.*, 1920, p. 203.
- 1922 Foucher, *L'Ari Greco-Bouddhique du Gandhāra*, Vol. II, part II, pp. 490, 572.
- 1924 Konow, *Acta Orientalia*, Vol. III, p. 70, n. 2.
- Date: L. 1.—*Vaṣa ekaṇaṣīti-śatimae*⁴ *Aṣaḍasa masasa di 10.*
Gift (*dana*), so that the unpreventable (*duṣamya*) Small-

¹ Konow reads Troṇivada. But there is a clear indication of subscript *r* at the foot of the last letter.

² It occurs at the end of an edict of Aśoka which is in Brāhmī characters.

³ The place is 8½ miles to the north of Chārsadda.

⁴ Cf. *ekadaśa-śatimaye* (i.e. 100 + 11) in the Pāṇi inscription and (*ti-śatimae* (i.e. 100 + 3) in the Takht-i-Bāhi inscription. I agree with Stratton

pox (*maṣura*) may be prevented (*śamayeta*), among children (*tanayeṣu*).

64. **Suē Vihār** (near Bahāwālpur. North Sind, now Bengal Asiatic Society's) copper-plate of the year 11 of Kanīṣka.

1870 Text and translation, Dowson, *Jour. Roy. As. Soc.*, N.S., Vol. IV, p. 477.

1870 Text and translation, Bayley, *Jour. As. Soc. Beng.*, Vol. XXXIX, p. 65 and pl.

1881 Text and translation, Hoernle, *Ind. Ant.*, Vol. X, p. 324 and pl.

1881 Translation, Hoernle, *Proc. As. Soc. Beng.* for 1881, p. 139.

1882 Text and translation,¹ Bhagwanlāl Indrāji, *Ind. Ant.*, Vol. XI, p. 128.

1896 Correction, Bühler, *Ind. Pal.* (Eng. Trans.), p. 28.

1902 Correction, R. Franke, *Pāli und Sanskrit*, p. 97.

1908 Banerji, *Ind. Ant.*, Vol. XXXVII, pp. 47, 55.

1917 Konow, *Ep. Ind.*, Vol. XIV, p. 136, no. 13.

1920 Banerji, *Jour. Roy. As. Soc.*, 1920, pp. 203, 205.

1922 Text and translation, N. G. Majumdar, *Sir Asutosh Mookerjee Silver Jubilee Volumes*, Orientalia, Part I, p. 459, plate and Table of Akṣaras.

Date: L. 1.—*Maharajasya Rajatirajasya Devaputrasya Kanīṣkasya saṁvacchare*² *ekadāśe saṁ 10-1 Dāśikasya māsaḥ divase athaviṣe di 20-4-4.*

The mistress of monastery (*vihāra-śvaminī*) Balanāṁdi, a female lay disciple (*upāsika*), erects (*aropayati*) a relic-pillar (*yathī*) of the Preacher of the Law (*dhammakalhi*), monk (*bhichu*) Nāgadatta (Nagadata), a disciple (*śiṣya*) of the preceptor (*acarya*) Damatrāta (Damatrata) and disciple's disciple (*praśiṣya*) of the preceptor (*acarya*) Bhava, at a place called Damana. And the mother of Balajaya, a female householder

and Banerji in reading the date as 179 and not as 399 (*ekūṇa-caduṣāti-ma-*) as proposed by Fleet (*Jour. Roy. As. Soc.*, 1912 p. 686, n. 1 and Konow (*Ep. Ind.*, Vol. XIV, p. 136, no. 12) Even if the reading *caduṣāti* (*catuṣṣāti*) be accepted it will mean 100+4 and not 400 on the analogy of other records.

¹ The author was unaware of, and hence could not utilise, the edition of Hoernle.

² Elsewhere (*Sir Asutosh Silver Jubilee Vols.*—Orient.—part I, pp. 467-470) I have shown why it should be read as *saṁvacchāra* and not as *saṁvatsāra*, *saṁvacāra* and so on. The ligature *cch* has been missed by scholars, such as Franke, Lüders and Konow, and Hoernle's defective lithograph (copied by Bühler in his *Tafel I*) is to blame. The right hand portion of the ligature is a regular *c*; its cross-bar does not meet the left hand upright and further has a wavy leg hanging down. The reading of *ś* as one of the component parts of the ligature is therefore impossible. The wavy leg is the lower portion of *c*. Under the circumstances *cch* would be the only probable reading.

- (*kuṭubīnī*), offers worship (*pūja*) in connection with the erection of the pillar (*yathī-pratīṭhanaka*).
65. Swāt Valley¹ (N.W.F. Province, now Lahore Museum, no. L. 4) relic casket inscription of Theodoros.
 1914 Text and translation, F.W. Thomas, *Fest. E. Windisch*, p. 362 and pl.
 1915 Vogel, *Jour. Panjab Hist. Soc.*, Vol. III, no. 2, p. 151.
 1916 F. W. Thomas, *Jour. Roy. As. Soc.*, 1916, p. 280.
 A corporeal relic (*śarīra*) of the Lord (*bhagavata*) Śākyamuni (Śakamuni), i.e., the Buddha is established, by Theodora² (Theodoros), a Meridarch (*meridarkha*).³
66. Takht-i-Bāhi⁴ (Dist. Peshāwar, now Lahore Museum, no. I, 1) inscription of the reign of Gondophares, of the year 103.
 1871 Dowson, *Trübner's Literary Record*, June, 1871 (see also *Jour. Roy. As. Soc.*, 1875, p. 376).
 1871 Cunningham,⁵ *Trübner's Literary Record*.
 1873 Cunningham, *Ind. Ant.*, Vol. II, p. 242 (extract from *Trübner's Lit. Rec.*).
 1875 Dowson, *Jour. Roy. As. Soc.*, 1875, p. 376 and pl.
 1875 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 58 and pl. XVI, fig. 3.
 1877 E. Thomas, *Jour. Roy. As. Soc.*, 1877, pp. 9-10, n.
 1877 Dowson, *Jour. Roy. As. Soc.*, 1877, p. 144.⁶
 1879 Von Sallet, *Die Nachfolger Alex. d. Gross.*, p. 51 and n. 1.
 1890 Text and translation, Senart, *Jour. As.*, sér. 8, tome XV, p. 144 and pl.
 1903 Smith, *Jour. Roy. As. Soc.*, 1903, p. 40.
 1904 Text and translation, Boyér, *Jour. As.*, sér. 10, tome III, p. 458.

¹ The actual findspot is not recorded.

² Thomas reads *Theidora* (*Jour. Roy. As. Soc.*, 1916, p. 281) which is not correct.

³ Cf. below no. 70.

⁴ For the name see Lowenthal, *Jour. As. Soc. Beng.*, 1863, p. 3 and Fleet, *Jour. Roy. As. Soc.*, 1905, p. 228. It is a station on the Nowshera-Dargai branch of the North-Western Railway. The hill Takht-i-Bāhi is 9 miles N.-W. of Mardan.

⁵ Cunningham inadvertently mentions its find-spot as Shāhbāzgarhi. This statement does not occur in his later publications (e.g. *A.S.R.*, Vol. V). Cf. however Konow, who expresses his doubts about Takht-i-Bāhi being the real find-spot of the inscription (*Acta Orientalia*, Vol. III, p. 59, n. 3). In all his later publications (e.g. *Num. Chron.*, 1890, p. 118) Cunningham definitely states that the stone came from Takht-i-Bāhi where it was discovered by Dr. Leitner (*loc. cit.*, p. 58). See also Dowson's article in *Jour. Roy. As. Soc.*, 1875, p. 376, where he says that a rubbing of the inscription 'was brought from Takht-i-Bāhi by Dr. Leitner.' There seem to be therefore no real grounds for thinking that the stone did not come from Takht-i-Bāhi.

⁶ Accompanied by a reproduction of the date-portion contained in l. 1.

- 1905 Fleet, *Jour. Roy. As. Soc.*, 1905, p. 229.
 1906 Fleet, *Jour. Roy. As. Soc.*, 1906, p. 703.
 1907 Fleet, *Jour. Roy. As. Soc.*, 1907, p. 1039.
 1913 F. W. Thomas, *Jour. Roy. As. Soc.*, 1913, p. 636, n. 3.
 1913 Fleet, *Jour. Roy. As. Soc.*, 1913, p. 1002.
 1916 Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 800.
 1922 N. G. Majumdar, *Sir Asutosh Mookerjee Silver Jubilee Vols.*, Vol. III, Or., part 1, p. 468, n. 39.
 1924 Konow, *Acta Orientalia*, Vol. III, p. 53 & n. 1, pp. 59-61, 63, 69.

Date: Ll. 1.3—*Maharayasa Gudufarasa vaṣu 20 4-1-1 Saṃ-batsa(ra)-[ti]ṣatimae 1-100 1-1-1 Veśakhaśa masasa divase athama (?)*

A pious gift (*śadha-dana*) in honour (*puya*) of prince (*erjhuna*) Kapa (Kadphises)¹ Mentions the names of monk (*samāna*) Belasami and Miraboyana.

67. Takht-i-Bāhi (now Peshāwar Museum, no. 444) inscription a piece of black pottery.

1911 Hargreaves, *Ann. Rep. Arch. Surv. Front. Circ.*, 1910-11, p. 3

Fragment. 'In the Saṃgha of Four Quarters (*saṃgha catudīśa*)....'

68. Taxila² (now Taxila Museum, no. $\frac{3}{4}$) copper ladle inscription.³

1922 Marshall, *Ann. Rep. Arch. Surv.*, 1919-20, part I, p. 20 and pl. VIII, 6.

1924 Text and translation. N. G. Majumdar, *Jour. As. Soc. Beng.*, Vol. XIX, p. 347, n. 1.

Gift (*daṇamukha*) of Iśparaka (Iśvarka) to the Community of Four Quarters (*saṃgha catudīśa*), at the Northern Grove (*utara-rama*) at Tachasīla, for the acceptance (*parigraha*) of the Kāśyapiya sect (*Kāśavia*). Cf. above no. 2.

69. Taxila⁴ (now London Royal Asiatic Society's) copper-plate of Patika, of the year 78.

1862 E. Thomas, *Jour. Roy. As. Soc.*, Vol. XX, p. 108.

1862 E. Thomas, *Jour. As. Soc. Beng.*, Vol. XXXI, p. 532 and pl.

1863 Text and translation, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXIII, pp. 139, 172.

¹ The portion following the date, beginning with l. 3, has not been properly read and is of doubtful import. The important reading *erjhuna Kapasa puyae* is due to Professor Konow. Kapa is identifiable with Kujula Kadphises.

² The ruins of the ancient city of Takṣasīlā lie within the jurisdiction of Rawalpindi and Hāzārā dists., near the Taxila Ry. Station.

³ From Mahal near Sirkap.

⁴ Probably from the site Sirsuk; but cf. Marshall's remarks on the find-spot in his *Guide to Taxila* (1918), p. 97, n. 1.

- 1863 Mitra, *Jour. As. Soc. Beng.*, Vol. XXXIII, p. 151.
 1863 Dowson, *Jour. As. Soc. Beng.*, Vol. XXXII, p. 421
 and *Jour. Roy. As. Soc.*, Vol. XX, p. 221.
 1864 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXIII,
 p. 35.
 1871 Cunningham, *Arch. Surv. Rep.*, Vol. II, p. 134, n. 1.
 1875 Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 67 and pl.
 16, no. 3.
 1894 Text and translation, Bhagwanlāl Indrāji (ed. Rap-
 son), *Jour. Roy. As. Soc.*, 1894, p. 551.
 1895 Text and translation, Bühler, *Ep. Ind.*, Vol. IV, p.
 54 and pl.
 1909 Correction, Lüders, *Jour. Roy. As. Soc.*, 1909, p. 664.
 1913 Fleet, *Jour. Roy. As. Soc.*, 1913, p. 1001 and n. 3.
 1914 Fleet, *Jour. Roy. As. Soc.*, 1914, p. 995.
 1914 Marshall, *Jour. Roy. As. Soc.*, 1914, p. 984.
 1916 Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, p. 794, n. 1.
 1922 Correction, N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S.,
 Vol. XVIII, p. 65.

1924 Konow, *Acta Orientalia*, Vol. III, p. 58.

Date: L. 1.—[*saṃvatsā*]raye *athasatitimae* 20—20—20
 10 4—4 *maharayasa maham̐tasa* [Mo]gasa Pa[nemasa]-
masasa divase paṃcame 4—1.

A corporeal relic (*śarira*) of the lord (*bhagavata*) Śākya-
 muni (Śakamuṇi), which was formerly unestablish-
 ed (*a-pratiṭṭhāvita*) is now established, and a Saṃghārāma
 (*saṃgharama*) is erected at a place called Chema (Kṣema)
 to the north-east (*utarena praeu*) of the city (*nagara*) of
 Taxila (Takhaśila). Patika, son of Liaka Kusulaa, the
 Chatrapa of Chahara and Cukṣa,¹ under the great king
 (*maharaya*), the great Moga (*maham̐ta*). Rohinimitra
 (Rohinimitra), the Superintendent (*navakarmika*) of the
 monastery (*vihara*); the great gift-lord (*mahadana-pati*)
 Patika, the Crown-Prince (*yovarāa*). 'Patika with the
 Satrap (*sa-chatrapa*) Liaka' (endorsed on the reverse
 side of the Plate).

70. Taxila² (now Bengal Asiatic Society's) copper-plate of a
 Meridarch.

- 1855 Text and translation, Mitra, *Jour. As. Soc. Beng.*, Vol.
 XXIV, p. 328 and pl. XV, no. 3.
 1871 Cunningham, *Arch. Surv. Rep.*, Vol. II, p. 124 and
 pl. LIX.

¹ Cunningham (*Jour. Roy. As. Soc.*, 1863, p. 147) and Stein (*Ind.
 Ant.*, 1896, p. 174) have identified Cukṣa with modern Chach. The
 former identifies Chahara with modern Hāzārā. But cf. Cunningham,
Arch. Surv. Rep., Vol. XIV, p. 9 and *Notes on Anc. Geogr. Gandhāra*,
 p. 38 and n. 4.

² From the village of Jhaoli.

1908 Text and translation, H. P. Śāstri, *Jour. As. Soc. Beng.*, N.S., Vol. IV, p. 363 and pl.

1910 Banerji, *Jour. As. Soc. Beng.*, N.S. Vol. VI, p. 486, no. 3. [p. 279.]

1916 Correction, F. W. Thomas, *Jour. Roy. As. Soc.*, 1916.

1917 Konow, *Ep. Ind.*, Vol. XIV, p. 137, no. 23.

Fragment. A Stūpa (*thuva*) is established (*prati-sṭhāvita*), by a certain Meridarch¹ (*meriakha*).

✓ 71. Taxila (now lost) gold-plate inscription.

1861 Westropp, *Proc. As. Soc. Beng.*, for 1861, p. 413.

1862 Mitra, *Jour. As. Soc. Beng.*, Vol. XXXI, p. 175.

1862 Bayley, *Jour. As. Soc. Beng.*, Vol. XXXI, p. 184.

1865 Pearse, *Proc. As. Soc. Beng.* for 1865, p. 111.

1871 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. II, p. 130.

1916 Text and translation, F. W. Thomas, *Jour. Roy. As. Soc.*, 1916, p. 282 and pl.

Corporeal relic (*dhato*) of the Lord (*bhagavata*), i.e., the Buddha, is enshrined (*preṭṭhāvatiya*) by Atiyoha, sister (*sasi*) of Looda, at Śira.²

✓ 72. Taxila (now Taxila Museum, no. Ch. G. 5) silver scroll inscription of the reign of Khusana, of the year 136.

1914 Text and translation, Marshall, *Jour. Roy. As. Soc.*, 1914, p. 973.

1914 F. W. Thomas, *Jour. Roy. As. Soc.*, 1914, p. 987.

1914 Fleet, *Jour. Roy. As. Soc.*, 1914, p. 992.

1915 F. W. Thomas, *Jour. Roy. As. Soc.*, 1915, p. 155.

1915 Fleet, *Jour. Roy. As. Soc.*, 1915, p. 314.

1916 Text and translation, Marshall, *Ann. Rep. Arch. Surv.*, 1912-13, p. 18 and pl. XI, a.

1916 Woolner, *Jour. Roy. As. Soc.*, 1916, p. 570.

1916 Boyér, *Jour. As.*, sér. 11, tome V, p. 281.

1916 D. R. Bhandarkar, *Ind. Ant.*, 1916, p. 120.

1916 Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 803.

1920 Text and translation, Konow, *Ep. Ind.*, Vol. XIV, p. 284 and pl.

1921 Chanda, *Jour. Roy. As. Soc.*, 1921, p. 319.

1922 Deb, *Jour. Roy. As. Soc.*, 1922, p. 37.

1924 Konow, *Acta Orientalia*, Vol. III, p. 75.

Date: L. 1.—Sa 1-100 20 10 4-1-1 ayasa³ Aṣaḍasa masasa divase 10 4-1.

¹ This is a Greek official title which occurs also in no. 65—see Thomas, *Jour. Roy. As. Soc.*, 1916, p. 281. The copper-plate does not contain a date as was formerly supposed by Cunningham (and even of late by Konow).

² According to Thomas she was the 'daughter' of a *hamsi* mother, and *hamsa* father (*matu hasisa pitu hasase*). It is very doubtful whether this is acceptable.

³ According to Marshall 'ayasa' means 'of Azes'. So that the

A corporeal relic (*dhatu*) of the Lord (*bhagavata*) is enshrined (*pradīsthavīta*) in the Dharmarājikā Stūpa (*dhama-raia*) at Taksaśilā (*Tachasia*) in the Bodhisatva chapel (*gaha*) of Tanuva, by Bahalia, son of Imdafri, from Uraśā (*Urasaka*), (now) a resident (*vasthava*) of the town (*nagara*) of Noaca, for the bestowal of health (*aroga-dachina*) upon the great king (*maharaja*), king of kings (*raja-tiraja*), Devaputra Khusana (Kusāna).¹

73. Taxila² (now Taxila Museum, no. Ch. 284) inscription.

1916 Text and translation, Marshall, *Ann. Rep. Arch. Surv.*, 1912-13, p. 17 and pl. XIV, b.³

Fragment. Mentions the name 'Imdra'.....

74. Taxila⁴ (now Taxila Museum, no. Ch. C. 60 b) inscription on a broken frieze (or pedestal?)

1916 Text and translation, Marshall, *Ann. Rep. Arch. Surv.*, 1912-13, p. 17 and pl. XIV, e.

Fragment. Mentions the name 'Sena'.....

75. Taxila⁵ (now Taxila Museum, no. Ch. 593) inscription on a broken frieze.

1916 Text and translation, Marshall, *Ann. Rep. Arch. Surv.*, 1912-13, p. 17, and pl. XIV, f.

Two fragments. Some meritorious work 'for the veneration (*puya*) of.....and bestowal of perfect health (*aroga-dachina*) upon himself, together with his own kinsmen (*ñati*), friends and blood-relations (*lokhida*) and of Hodrea.....'

76. Taxila⁶ (now Taxila Museum, no. Ch. 1128) inscription on a stone lamp.

1916 Text and translation, Marshall, *Ann. Rep. Arch. Surv.*, 1912-13, p. 17 and pl. XIV, d.⁷

Fragment. Gift (*danamukha*) at the Chief Monastery (*aga-dhama-raia*) at Taxila (Tachaila) by.....

77. Taxila⁸ inscription on the pedestal of an image.⁹

year 136 refers to an era of Azes. This view has not, however, been generally accepted, and other interpretations, e.g., *aya-ādya* (i.e. 'first') have been proposed.

¹ King Kusāna is mentioned also in the Pānjtār inscription (no. 47). He is identifiable with one of the Kadphises kings. Sir John Marshall and Sten Konow identify him with Kujula Kadphises, whereas according to Rapson he is the same as Vima Kadphises. (*Cambridge History of India*, Vol. I, p. 582). See now Konow, *Act. Or.*, Vol. III, p. 64ff.

² From Chir Tope (*Dharmarājikā-stūpa*).

³ On p. 17, 'pl. XIV, d' is wrong for 'pl. XIV, b.'

⁴ From Chir Tope (*Dharmarājikā-stūpa*).

⁵ From Chir Tope (*Dharmarājikā-stūpa*).

⁶ From Chir Tope (*Dharmarājikā-stūpa*).

⁷ On p. 17, the reference to 'pl. XIV, c' is wrong for 'pl. XIV, d.'

⁸ This and the following twelve inscriptions are *in situ* on the Jaulian Mound (District Hāzārā). They are incised on the pedestals of stucco figures.

⁹ At the Main Stūpa; northern side; to the left of the Main Stair-case.

- 1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 6 and pl. XI, a.
Fragment. (*Gift*) of Dharmarati (Dhamarati) (*and*) Buddhmitra (Budhamitra).¹
78. Taxila inscription on the pedestal of an image.²
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9 and pl. XI, b³ (right-hand portion).
(*Gift*) of Saṅghamitra (Saghamitra).
79. Taxila inscription on the pedestal of an image.⁴
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9, and pl. XI, b (left-hand portion).
Gift (*danamukha*) of the monk (*bhichu*) Buddhadeva (Budhadeva).
80. Taxila inscription on the pedestal of an image.⁵
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9 and pl. XI, c.
(*Gift*) of Śramaṇamitra (Śamanamitra).
81. Taxila inscription on the pedestal of an image.⁶
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9 and pl. XI, d.
Gift (*danamukha*) of the monk (*bhichu*) Buddharakṣita (Budharachita).
82. Taxila inscription on the pedestal of an image.⁷
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9 and pl. XI, e.
Gift (*danamukha*) of Dhanamitra (Dhanamitra), the monk (*bhichu*) from Nagara. For Nagara cf. nos. 42(F) and 42(N).
83. Taxila inscription on the pedestal of an image.⁸
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9 and pl. f.
Fragment. (*Gift of*) Dhanu.....
84. Taxila inscription on the pedestal of an image.⁹
1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 9 and pl. XI, g.

¹ Read: *Dhamaratissa Budhami[tra] (Sa)*.....

² At Stūpa A¹⁵, E. face at Jaulian.

³ Sir John Marshall takes nos. 78 and 79 as one single record. But inscription no. 78 occurs below one image and inscription no. 79 below another. Between these two images there is a third one which bears no label at all on the pedestal. Again, not only there is a large blank space left between the two portions of the inscription, but also one is in much bolder characters than the other. I therefore treat them as two different records.

⁴ At Stūpa A¹⁵, Eastern face at Jaulian.

⁵ At Stūpa A¹⁵, Western face at Jaulian.

⁶ At Stūpa A¹⁵, Southern face at Jaulian.

⁷ At Stūpa A¹⁵, Southern face at Jaulian.

⁸ At Stūpa A¹⁵, Northern face at Jaulian.

⁹ At Stūpa A¹⁵, Northern face at Jaulian.

Gift (*daṇamukha*) of Rāhula, (Rahula) the monk (*bhichu*) from Vanāyu (*Vanaea*).¹

85. Taxila inscription on the pedestal of an image.²

1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 10 and pl. XI, h.

Fragment. Gift of.....

86. Taxila inscription on the pedestal of an image.³

1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 10 and pl. XI, i.

Fragment. The Buddha Kāśyapa (Kaśava).

87. Taxila inscription on the pedestal of an image.⁴

1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 10 and pl. XI, j.

Fragment. Gift of.....

88. Taxila inscription on the pedestal of an image.⁵

1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 10 and pl. XI, k.

The Buddha (*Tathagata*) Kāśyapa (Kaśava).

89. Taxila inscription on the pedestal of an image.⁶

1921 Text and translation, Marshall, *Mem. Arch. Surv. Ind.*, no. 7, p. 10 and pl. XI, l.

Gift (*dana*..). The Buddha (*Tathagata*) Śākyamuni (Śakamuni), the Conqueror (*Jinaeśa*). Cf. no. 94.

90. Taxila⁷ (now Lahore Museum) vase⁸ inscription.

1863 Text and translation, Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 24 and pl. III, fig. 2, and *Jour. As. Soc. Beng.*, Vol. XXXII, p. 428.

1863 Text and translation, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXII, p. 151, and correction, p. 172.

1871 Cunningham, *Arch. Surv. Rep.*, Vol. II, p. 125 and pl. LIX.

1906 F. W. Thomas, *Jour. Roy. As. Soc.*, 1906, p. 453.

1906 Text and translation, Vogel, *Jour. Roy. As. Soc.*, 1906, p. 550.

1906 Fleet, *Jour. Roy. As. Soc.*, 1906, p. 711.

1906 Rouse, *Jour. Roy. As. Soc.*, 1906, p. 992.

1906 Grierson, *Jour. Roy. As. Soc.*, 1906, p. 993.

¹ Probably same as 'Vanāyu' (well-known from Sanskrit literature (*Sanskrit Wörterbuch. sub. voc.*). Mr Pargiter identifies it with Bannu district (*Mārkaṇḍeya Purāṇa*, Eng. trans., p. 372, f.n.). Commonly, however, it is identified with Arabia (e.g., K. D. Nag, *Theories Diplomatiques*, Paris 1923, p. 135).

² At Stūpa D⁵, Eastern face at Jaulian.

³ At Stūpa D⁵, Southern face at Jaulian.

⁴ At Stūpa D⁵, Southern face at Jaulian.

⁵ At Stūpa D⁵, Western face at Jaulian.

⁶ At Stūpa D⁵, Western face at Jaulian.

⁷ Actual findspot not recorded.

⁸ It bears no number. In the Lahore Museum it is deposited in a Table-case near the big 'Sikri Drum.'

1906 Smith, *Jour. Roy. As. Soc.*, 1906, p. 1008.

1905-6 Text and translation, Lüders, *Ep. Ind.*, Vol. VIII, p. 296 and pls

A Stūpa (*thupa*) is established (*pratithavita*) at Taxila (Takhaśīla) by the brothers, Sihila and Siharachita.

91. **Tirath** (Swāt Valley, N.W.F.P.) Buddha's foot-print inscription on a rock.

1898 Text and translation, Bühler, *Anz. Kais. Ak. d. Wiss.*, Wien, Phil.-Hist. Cl., Vol. XXXV, p. 12 and pl. (p. 13).

1898 Rhys Davids, *Jour. Roy. As. Soc.*, 1898, p. 460.

1922 Stein, *Serindia*, Vol I, p. 8 and n. 21.

"The feet (*padanī*) of the Buddhha (Bodha) Śākyamuni (Śakamuni)."

92. **Und**¹ (Dist. Peshāwar, now lost) inscription of the year 61.

1854 Text and translation, Cunningham, *Jour. As. Soc. Beng.*, Vol. XXIII, p. 705 and pl. opposite p. 705, fig. 5.

1863 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXIII, p. 145, no. 4.

1863 Dowson, *Jour. Roy. As. Soc.*, Vol. XX, pl. X.

1864 Cunningham, *Jour. As. Soc. Beng.* Vol. XXXIII, p. 37.

1875 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 58 and pl. XVI, fig. 2.

1890 Text and translation, Senart, *Jour. As.*, sér. 8, tome XV, p. 130.

1909 Correction, Lüders, *Jour. Roy. As. Soc.*, 1909, p. 666.

1917 Konow, *Ep. Ind.*, Vol. XIV, p. 137, no. 21.

1924 Konow, *Acta Orientalia*, Vol. III, p. 77.

Date: *Sam* 20—20—20—1 *Cetrasa mahasa divasa ahami di* 4-4.

Records only the date.

93. **Wardak** (near Kabul, now British Museum) vase inscription² of the reign of Huviska, of the year 51.

1841 Masson, Wilson's *Ariana Antiqua*, p. 117.

1858 E. Thomas, Prinsep's *Essays on Ind. Ant.*, Vol. I, p. 161 and pl.

1861 Text and translation, Mitra, *Jour. As. Soc. Beng.*, Vol. XXX, p. 337 and pl.

1861 Bayley, *Jour. As. Soc. Beng.*, Vol. XXX, p. 347.

1863 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXII, p. 144, no. 3.

1863 Mitra, *Jour. As. Soc. Beng.*, Vol. XXXII, p. 153.

1863 Dowson, *Jour. As. Soc. Beng.*, Vol. XXXII, p. 428.

1864 Cunningham, *Jour. As. Soc. Beng.*, Vol. XXXIII, p. 37.

¹ Same as Ohind, ancient Udabhāṇḍa, on the Indus, 15 miles above Attock.

² From a tope in a place called Kohwāt, 30 miles W. of Kabul.

- 1890 Senart, *Jour. As.*, sér. 8, tome XV, p. 121.
 1896 Senart, *Jour. As.*, sér. 9, tome VII, p. 8.
 1906 F. W. Thomas, *Jour. Roy. As. Soc.*, 1906, p. 214.
 1909 Lüders, *Jour. Roy. As. Soc.*, 1909, p. 661 and n. 8, and p. 665.
 1912 Text and translation, Pargiter, *Jour. Roy. As. Soc.*, 1912, p. 1060.
 1913 Phonetics, Grierson, *Jour. Roy. As. Soc.*, 1913, p. 141.
 1911-12 Text and translation, Pargiter, *Ep. Ind.*, Vol. XI, p. 202 and pls.
 1914 Phonetics, Pargiter, *Jour. Roy. As. Soc.*, 1914, p. 126, and correction, p. 128.
 1914 Text and translation, Senart, *Jour. As.*, sér. 11 tome IV, p. 569.
 1916 Text and translation, Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 807.
 1919 Lüders, *Sitz. Preuss. Ak. d. Wiss.*, 1919, p. 763, n. 1, and pp. 765-66. [p. 224.
 1919 Hultzsch, *Zeits. d. Deutsch. Morg. Gess.*, Bd. LXXIII,
 1922 N. G. Majumdar, *Jour. As. Soc. Beng.*, N.S. Vol. XVIII, p. 64.

Date: L. 1—Sam 20—20—10 1 masya Arthamisiya sasthehi 10—4—1.

A corporeal relic (*śarira*) is enshrined, at the afore-said time (*gaḍiga*), of the Lord (*bhagavata*) Śākyamuni (Śākyamuni) i.e., Buddha, in a Stūpa (*thuva*) within the Vagra Marega Vihāra (*vihara*) at Khavata, by Vagra Marega, son of Kamaguli, for the pre-eminent lot (*agra-bhaga*) of the Great King (*Maharaja*), king of kings (*Rajataraja*) Huviṣka (Hoveṣka), of Vagra Marega himself, Mithyaga, Hasthuna Marega and the Avasatrigas(?). The monastery (*vihara*) for the acceptance (*parigraha*) of the Ācāryas (*acarya*) of the Mahāsāṃghika (Mahasamghika) School.¹

94. Yākubi (Peshāwar Dist, now Peshāwar Museum, no. 280) pedestal inscription.

1910 Spooner, *Hand-book to the Sculptures in the Peshawar Museum*, p. 50 and pl.

1912 Text and translation, Spooner, *Ann. Rep. Arch. Surv.*, 1908-9, p. 130 and pl. XLVII and fig. (p. 131).

Gift (*danamukha*) (of an image) of the Buddha (*jina-kumara*)² by Sādhakamitra (Sadhakamitra)....

95. Zeda (near Und, Dist. Peshāwar, now Lahore Museum, no. I, 2) inscription of the reign of Kaniska, of the year 11.
 1863 Lowenthal, *Jour. As. Soc. Beng.*, Vol. XXXII, p. 5.

¹ Portions in l. 3 have not yet been clearly interpreted.

² Cf. no. 89.

1875 Text and translation, Cunningham, *Arch. Surv. Rep.*, Vol. V, p. 57 and pl. XVI, 1.

1877 E. Thomas, *Jour. Roy. As. Soc.*, N.S. Vol. IX, p. 9, n. 1.

1890 Text and translation, Senart, *Jour. As.*, sér. 8, tome XV, p. 136 and pl. I, 3.

1904 Text and translation, Boyér, *Jour. As.*, sér. 10, tome III, p. 466.

1916 Konow, *Sitz. Kön. Preuss. Ak. d. Wiss.*, 1916, p. 801.

1917 Konow, *Ep. Ind.*, Vol. XIV, p. 136, no. 14.

Date: L. 1.—*Sam* 10—1 *Aṣaḍasa masasa di* 20 *Utaraphagune*.

L. 2.—*Vemadaṣa marjhakasa* ¹ *Kaniṣpa (ṣka)sa rajami*.

Not yet clearly interpreted. A well (*kua*), (*which is*) a gift (*danamukha*) of Saṃghamitra (Saghamitra) is excavated (*khada*).

Addenda.

(i) Brass box lid inscription of the year 18.²

1862 Cunningham, *Jour. Roy. As. Soc.*, Vol. XXXI, p. 303.

1863 Dowson, *Jour. Roy. As. Soc.*, Vol. XX, p. 232, pp. 254-255 and pl. IX, fig. 3.

1917 Konow, *Ep. Ind.*, Vol. XIV, p. 136, no. 15.³

Date: *Sam* 10—1—4.

Nothing beyond the date has been read.⁴

(ii) *Sāhri-Bahlol* (Dist. Peshāwar) black pottery inscription.⁵

1875 Cunningham, *Arch. Surv. Rep.*, Vol. V, pp. 44, 63 and pl. XVI, no. 6.

1906 Correction, Lüders, *Ann. Rep. Arch. Surv.*, 1903-4, p. 291.

Fragment. "In the Saṃgha . . ."

(iii) *Taja* (Dist. Peshāwar) inscription.

1916 Ayar, *Ann. Rep. Arch. Surv.*, *Front. Circ.*, 1915-16, p. 36.

Not read.

(iv) *Takht-i-Bāhi* inscription on the back of a Buddha image.⁶

1911 Hargreaves, *Ann. Rep. Arch. Surv.*, *Front. Circ.*, 1910-11, p. 4.

'Of Horasada (?)'

¹ *Vemada* and *marjhaka* seem to be titles of Kaniṣka, the exact significance of which is not known.

² It is perhaps in the British Museum. Dowson describes it as one of 'the relics sent home by Mr. Masson.' (*op. cit.*, p. 254). The findspot of the inscription is not recorded.

³ Konow's reference, 'pl. 1-3' is wrong for 'pl. IX, fig. 3.'

⁴ Konow's tentative reading of the name of Kaniṣka in this record is doubtful.

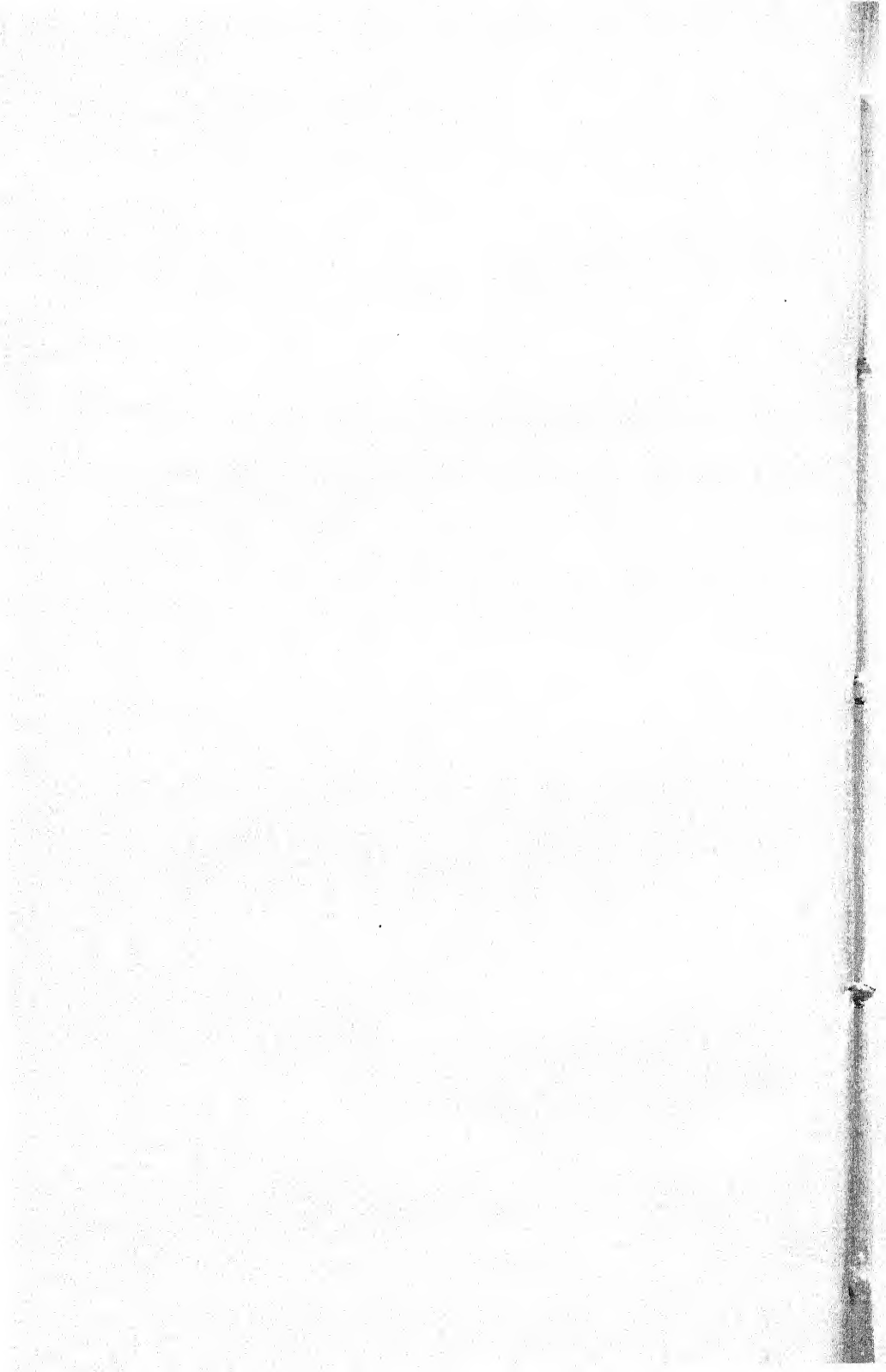
⁵ Place of deposit not known; possibly the object is lost.

⁶ Place of deposit not known.

LIST OF FINDSPOTS OR PLACES OF DEPOSIT.

(Numbers refer to the serial numbers in the text.)

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khadaa (*khātaka*), 'excavated,' 61.
 Khalamasa, n. of a person, 42 (E).
 Khalasamuśa, n. of a person, 42 (J').
khanavida (*khanita*), 'dug,' 54, 55.
 Kharaosta, n. of a Śaka-Palhava crown-prince, 42 (A), 42 (E).
 Khardaa, n. of a Satrap, 42 (Q).
 Khemadeva (Kṣemadeva), n. of a person, 55.
 Khujacia, n. of a person, 36.
 Khusāna (Kṣuśāna), a section of the Yue chi tribe and secondarily, n. of a k., 72.
kova (*kūpa*), 'well,' 61.
 Kriṣarayaśa (Kṛṣṇayaśa), n. of a person, 23.
 Kronina (?) 42 (R).
kua (*kūpa*), 'well,' 21, 34, 41, 43, 46, 54, 95.
kupa (*kūpa*), 'well,' 1.
kumāra, 'prince,' 42 (E).
kuśala-mula (*kuśala-mūla*), 'merit,' 13.
 Kusulaa Padika, n. of a Śaka-Palhava Satrap, 42 (G).
kuṣubini (*kuṣumbinī*), 'wife of a householder,' 64.
lajua (*rajjuka*), an official designation, 21.
 Lala, n. of a person, 36.
 Liaka Kusulaa, n. of a Śaka-Palhava Satrap, 69.
lipikara, 'scribe,' 62.
lohida (*lohita*), 'blood relation,' 75.
 Looda, n. of a person, 71.
maha (*māsa*), 'month,' 92.
mahachatrava (*mahākṣatrapa*), 'Great Satrap,' 42 (A), 42 (B), 42 (G).
maha-danapati (*mahā-dānapati*), 'great gift-lord,' 69.
mahamita (*mahat*), 'great,' a title, 69.
maharaja (*mahārāja*), 'great king,' 1, 25, 36, 64, 72, 93.
maharaya (*mahārāja*), 'great king,' 47, 66, 69.
 Mahasaṅghiga (Mahāsāṅghika), n. of a B. sect, 93.

Mahasaṅghia, n. of a B. sect, 42 (N).
 Mahasena saṅgharama (Mahāsena-Saṅghārāma), n. of a B. establishment, 60.
 Maja, n. of a person, 42 (E).
majha-dīvasa (*madhya-dīvasa*), 'mid-day,' 36.
 Makadaka (Mārkaṇḍaka), n. of a person, 34. [95.
marḥaka, a title of k. Kaniska, *māsa* (*māsa*), 'month,' 1, 9, 10, 12, 13, 46, 47, 54, 55, 57, 61, 63, 64, 66, 69, 72, 93, 95.
maṣura (*maṣūra*), 'smallpox,' 63.
maia (*mātā*), 'mother,' 42 (A).
meriakha, a Greek official title, 70.
meridarkha, a Greek official title, 65.
 Mevaki Miyika, n. of a person, 42 (G).
 Miraboyana, n. of a person, 66.
 Mithyaga, n. of a person, 93.
 Moga, n. of a Śaka-Palhava k., 69.
 Moika, n. of a person, 47.
 Mumjanamda, n. of a person, 3.
 Mumjavada, n. of a person, 3.
 Nadasi-Akasa, n. of a lady, 42 (A).
 Naga-chatra (?), 9.
 Nagadata (Nāgadata), n. of a B. monk, 64.
ṇagara (*nagara*), 'city,' 72.
nagara, 'city,' 69.
 Nagara, n. of a place, 82.
 Nakrara (Nagara), n. of a place, 42 (F), 42 (N).
ṇati (*jñāti*), 'kinsman,' 75.
 Naṭluda, n. of a person, 42 (D).
navakarmi (*navakarmika*), 'Superintendent,' 60.
navakarmia (*navakarmika*), 'Superintendent,' 13.
navakarmika, 'Superintendent,' 69.
nikama (*nigama*), 'a town,' 61.
nirvaṇa (*nirvāṇa*), 'Salvation,' 13.
nisima, 'a stūpa,' 42 (A), 42 (J, 1-2).
niyatita (*niyātita*), 'given,' 42 (J-1, 2).
 Noaca, n. of a city, 72.
 Ojiliakas, n. of a family (?), 14.
pacadaśa (*pañcadaśa*), 'fifteen,' 46.
pañcadaśa, 'fifteen,' 54.
 Paḍa, n. of a person, 62.
paḍa, 'foot' or 'footprint,' 91.
paḍhama (*prathama*), 'first,' 14.
pañcama, 'fifth,' 69.

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pañca (*pañca*), 'fifth,' 12.
Panema (*Panemaios*), n. of a Greek month, 69.
para, 'other,' 28, 56.
parigraha, 'acceptance,' 42 (A), 42 (J-3), 60, 68, 93.
Patika, n. of a Śaka Palhava Satrap, 69.
pati + thav (*prati + sthāp*), 'to establish,' 26.
Pipalakhā, n. of a person, 21.
Pispasi, n. of a lady, 42 (A).
pīramahī (*pīāmāhī*), 'paternal grandmother,' 42 (A).
Podaka (?), n. of a B. Śrāvaka, 14.
Posapuri, n. of a person, 1.
Pothavada (*Prausthapada*), n. of a month, 61.
praca (*prāk*), 'east,' 47.
pracu (*prāk*), 'east,' 69.
pradhama (*prathamā*), 'first,' 47.
pradisthāvita (*pratiśthāpita*), 'established,' 72.
prāśīya, 'disciple's disciple,' 64.
prathavida (*prasthāpita*), 'established,' 14.
pratiśthāpita (*pratiśthāpita*), 'established,' 13.
pratiśthāvita (*pratiśthāpita*), 'established,' 70.
prati + thav (*prati + sthāp*), 'to establish,' 52.
pratiśthāvita (*pratiśthāpita*), 42 (A).
pratiśthāvita (*pratiśthāpita*), 'established,' 90.
prethavāitiya (*prasthāpitaka*), 'established,' 71.
Prothavada (*Prausthapada*), n. of a month, 12, 33.
Prethavata (*Prausthapada*), n. of a month, 10.
puja (*pūjā*), 64.
pukara (*puṣkara*), 'tank,' 24.
pukarāni (*puṣkarinī*), 'a tank,' 22.
pukarīni (*puṣkarāni*), 'a tank,' 48.
Pukhala (*Ṣuṣkala*), n. of a locality, 8.
purva (*pūrva*), 'aforesaid,' 36.
puya (*pūjā*), 'worship,' 42 (O), 42 (P), 66, 70, 75, 90, 93.
Rachila (?), n. of a person, 42 (R).
radna (*ratna*), 'jewel,' secondarily a 'relic,' 14. [84.
Rahula (*Rāhula*), n. of a B. monk.
raja (*rājya*), 'reign,' 47, 95.
raja (*rājā*), 'king,' 13.
rajataraja (*rājātirāja*), a title of paramount k., 1, 64, 72, 93.
Rajavanita (*Rājavat*), n. of a B. Stūpa, 13.

Rajula, n. of a Śaka-Palhava Satrap, 42 (A), 42 (B).
Rathidara (*Rathītara*), n. of a Brāhman gotra, 48.
Rohiṇimitra (*Rohiṇimitra*), n. of a person, 69.
sa (*sva*), 'own,' 28.
sabhara (*sambhāra*), 'provision,' 13.
sa-chatrapa, 'with the satrap,' 69.
sadha (*saha*), 'along with,' 42 (A).
śadha-dāna (*śradhdhā-dāna*), 'a pious gift,' 66.
Sadhaka-mitra (*Sādhakamitra*), n. of a person, 94.
sagha (*saṅgha*), 'B. order,' 42 (O).
sagha catudīśa, 'B. order of Four Quarters,' 42 (A).
Saghamitra (*Samghamitra*), n. of a person, 78, 95.
Saghammitra (*Samghamitra*), n. of an overseer, 13.
Sagharachita (*Samgharakṣita*), n. of a person, 2.
Sagharama (*Samghārāma*), 'B. monastery,' 42 (A).
Saghoruma (*Samghavarman*), n. of a person, 33.
Sahaya, n. of a person, 10, 41.
Sahayara, n. of a person, 43.
Sahilaa, n. of a person, 31.
Śakamuni (*Śākyamuni*), Buddha, 42(A), 65, 69, 89, 91, 93.
Śakra-sthana (*Śakra-sthāna*), 'place of Indra,' 42 (P).
Śākyamuni (*Śākyamuni*), 26, 93.
śam, 'to prevent,' 63.
samana (*śramaṇa*), 'monk,' 66.
samana (*śramaṇa*), 'monk,' 4, 5, 11.
Śamaṇamitra (*Śramaṇamitra*), n. of a person, 79.
sambatsāra (*saṁvatsara*), 'year,' 1, 13, 66.
Saindhahudhila, n. of a person, 36.
Saigamitra (*Samghamitra*), n. of a person, 46.
saṅgha catudīśa, 'B. order of Four Quarters,' 3, 4, 5, 67, 68.
Samghamitra, n. of a B. monk, 11.
saṅgharama (*saṅghārāma*), 'B. Monastery,' 60, 69.
saṁvacchāra (*saṁvatsara*), 'year,' 64.
saṁvatsāra (*saṁvatsara*), 'year,' 34, 46, 69.
Saphā, n. of a lady, 16.
śarira (*śarīra*), 'corporeal relic,' 3, 13, 26, 42(A), 65, 69, 71, 93.
Sarvastivadi (*Sarvāstivādin*), n. a B. sect, 26, 60.

- Sarvastivata (Sarvāstivāda), n. of a B. sect, 42(A), 42 (F), 42 (J-3), 42 (N).
sasi (*svasri*), 'sister,' 71.
śāspaa (*śāsvata*), 42 (A).
śasura (*śvaśura*), 'father-in-law,' 54.
śatimaa (*śatamaya*), 'consisting of a century,' 63.
śatimaya (*śatamaya*), 46.
Sava (?), n. of a person, 21.
śavaa (*śrāvaka*), 'a lay hearer,' 14.
Sena, n. of a person, 74.
śidhi (*siddhi*), 'perfection,' 24.
Sihamitra (*Siṃhamitra*), n. of a person, 31.
Siharachita (*Siṃharakṣita*), n. of a person, brother of *Siḥila*, 90.
Siḥila, n. of a person, brother of *Siḥarachita*, 90.
Śira, n. of a place, 71.
śiṣya, 'disciple,' 64.
Śivarachita (*Śivarakṣita*), n. of a person, 3.
Śivathala (*Siva-sthala*), 'Siva temple,' 47.
śoḍaśa, 'sixteenth,' 10.
Śravaṇa (*Śrāvana*), n. of a month, 22, 46, 47.
Śudasa, n. of a Śaka-Palḥava Śatrap, 42 (B).
Śudisa (same as *Śudasa*), 42 (M).
śukaa (*śukrid*), 'friend,' 14.
Svarabudhi, n. of a person, brother of *Samdhabudhila*, 36.

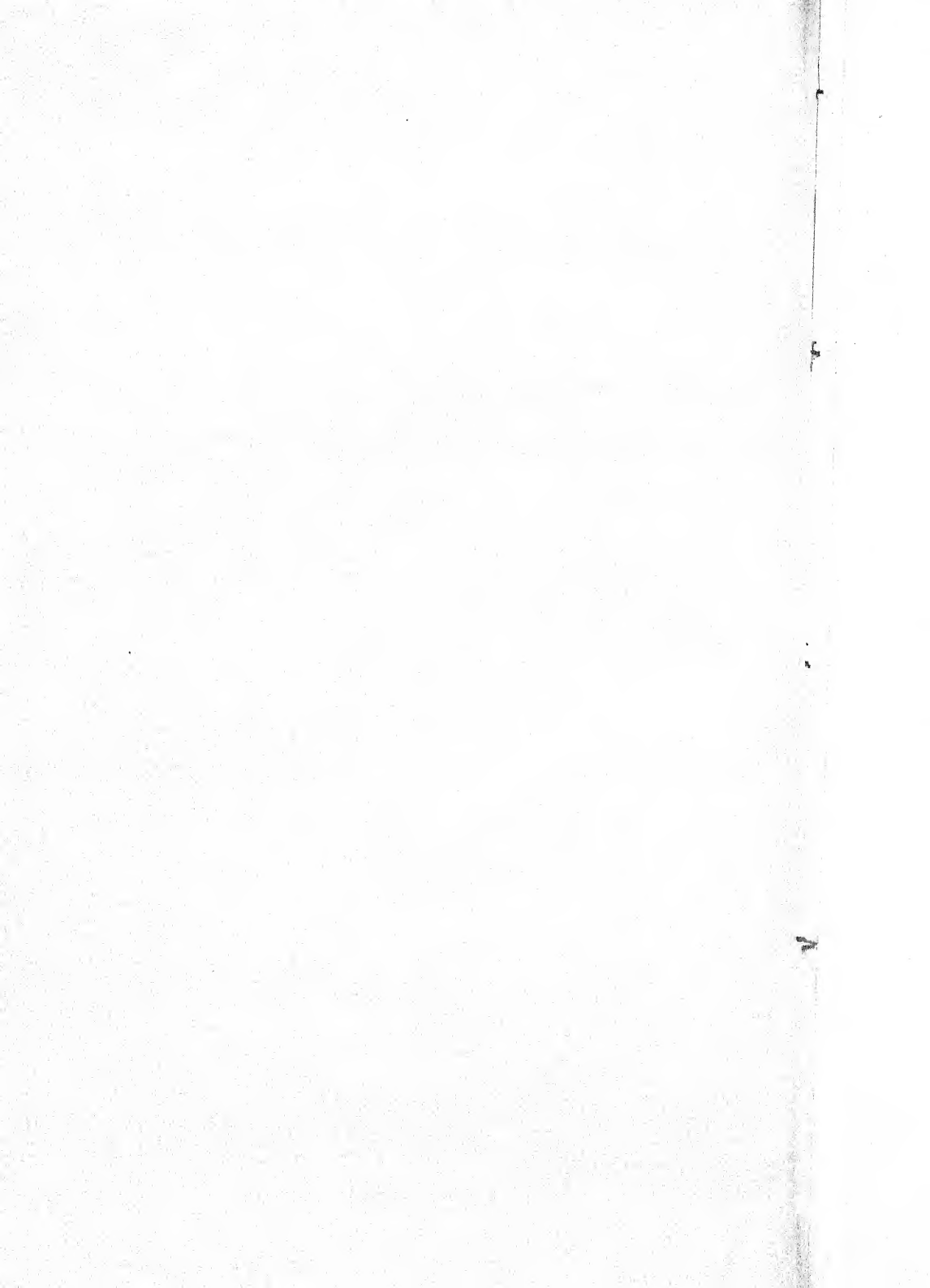
Tachaila (*Takṣaśilā*), n. of a place, 76.
Tachāśia (*Takṣaśilā*), n. of a place, 72.
Tachāśila (*Takṣaśilā*), n. of a place, 68.
Takhaśila (*Takṣaśilā*), n. of a place, 69, 90.
taṃka (*ṭaṃka*), 'coin,' 47.
tanaya (pl.), 'children,' 63.
Tanuva, n. of a place in Taxila, 72.
Tathagata (*Tathāgata*), Buddha, 88, 89.
Thaidora (*Theodoros*), n. of a Greek, 22.
Theadora (*Theodoros*), n. of a Greek, 65.
thuna (*sthūnā*), 'pilaster,' 15.
thuva (*stūpa*), 13, 42 (A) 70, 90, 93.
ti (*tri*), 'three,' 66.

Trava (*Trapā*), n. of a lady, 54.
Tronivadra, n. of a person, 61.

urasaka (*Auraśaka*), 'inhabitant of Uraśā,' 72.
upasika (*upāsikā*), 'a female lay-hearer,' 64.
Uraśa-raja (*Uraśā-rājya*), n. of a kingdom, 2.
Urumuja, n. of a person, 47.
utaa (*udaya*), 'elevation,' 42 (K-L).
utara (*uttara*), 'north,' 69.
Utara-phaguna (*Uttara-phalguna*), n. of a star, 95.
Utara-rama (*Uttar-ārāma*), 'Northern grove,' 68.

Vagra-Marega, n. of a person, 93.
Vagra Marega Vihāra, n. of a B. monastery, 93.
Vajula (*Rājūla*), n. of a Śaka-Palḥava Śatrap, 42 (B).
Vanaea (*Vanāyuja*), 'inhabitant of Vanāyu,' 84.
vara (*varṣa*), 'year,' 22, 43, 63, 66.
Va. spa (*Vāsiṣka*), n. of a Kuṣāṇ k., father of *Kaniṣka*, 1.
Vasiṣuga, n. of a person, 43.
vasthava (*vāstavya*), 'inhabitant,' 55, 72.
Vasudeva, n. of a person, 55.
Vayira (*Vajra*), n. of a person, 34.
Vayula, n. of a person, 48.
Vemaḍa, a title of k. *Kaniṣka*, 95.
Veśakha (*Vaiśākha*), n. of a month, 9, 66.
Vespaśi, n. of a place, 36.
vihara (*vihāra*), 'B. monastery,' 36, 54, 69, 93.
vihara-karaaja (*vihāra-kāraka*), 'an officer in charge of monastery,' 36.
vihara-svamiṇi (*vihāra-svāmiṇi*), 'mistress of monastery,' 64.
viśa (*viṃśa*), 'twentieth,' 61.
viśaa (*viśaya*), 'district,' 8.

Yaśovata, n. of a person, 6.
yaṭhi (*yaṣṭi*), 'relic pillar,' 64.
yaṭhi-pratisthanaka (*yaṣṭi-pratisthānaka*), 'incidental to the erection of a pillar,' 64. [69].
yovaraa (*yuvarāja*), 'crown prince,'
yuvaraja (*yuvarāja*), 'crown prince,' 42 (A).
yuvaraya (*yuvarāja*), 'crown prince,' 42 (E), 69.



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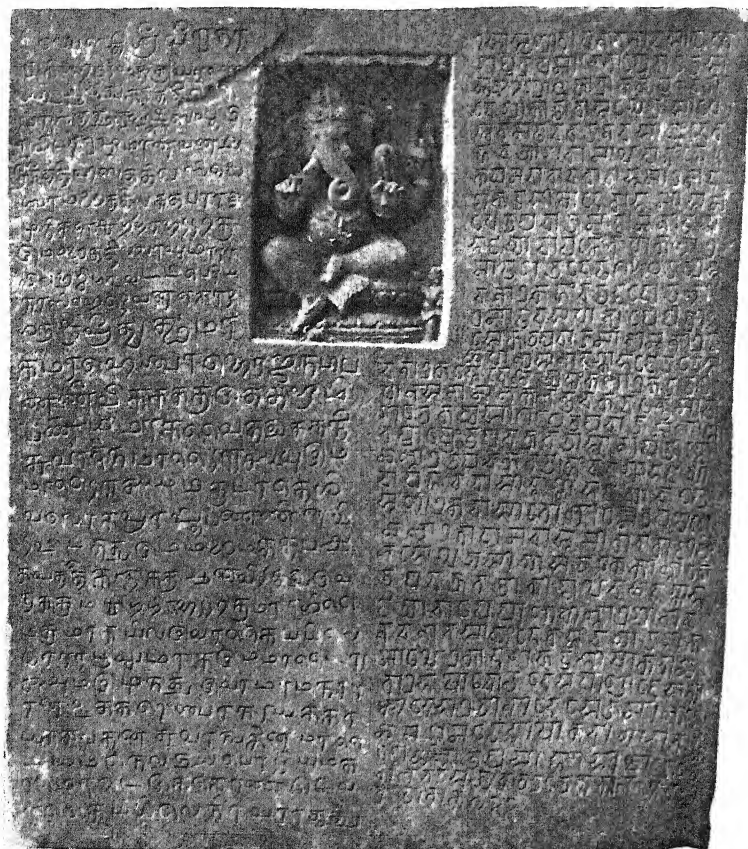
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Bhubaneswer Stone, front view.

An Inscription obtained from Bhubaneswer, dated the 11th year of Vira Nara-simha Deva, of Orissa.

By GANAPATI SIRCAR, VIDYARATNA.

I went to Bhubaneswer in the last week of July in the year 1916. His Holiness Swami Keswananda Bromhachari was then digging the foundation of his monastery near the Gouri-Kedar Temple. In the course of excavation were turned up many objects of antiquarian interest of which an inscribed stone with a beautiful image of Ganesa in excellent preservation was one. It was exhibited at the Annual Meeting (1919) of the Asiatic Society of Bengal. It is now in my possession, the Swami having presented it to me.

It is a bilingual inscription in Bengali and Tamil characters. The one is a translation of the other. The Bengali script is peculiar having a tendency to Oriya. The language of the inscription in Bengali character is Oriya.

The stone measures $26\frac{3}{4}$ " in length and 23" in breadth and $5\frac{3}{4}$ " in thickness. At the middle of the top there is an image of Ganesa in bas-relief measuring $8\frac{1}{2}$ " in length and 6" in breadth and $1\frac{1}{4}$ " in thickness. The whole stone weighs nearly five maunds. On the right of the image commences the Bengali inscription which is $8\frac{1}{2}$ " for 12 lines and 11" for the rest. The two inscriptions are separated by a space 1" broad. The letters vary in size from $\frac{1}{2}$ " to $\frac{3}{4}$ " in length as well as in breadth. The Bengali inscription is thicker than the Tamil one.

The orthography of the inscription is something horrible, it writes *Kṛiṣṇa* for *Kṛṣṇa*, for *Svasti* it has *Svasta*, *Singgha* for *Simha*, *Pravradhamāna* for *Pravardhamāna*, *Bīya rāja* for *Vijayarāja*. The scribe is not always consistent in his errors, for *Ayuskāmāṛthe* it writes in one place *Āśakāmātha* and in another *Āśakāmātha*.

The Tamil portion of the inscription is dated on the same date, i.e., Sunday, the 7th lunar mansion of the Black fortnight in the month of Kartika in the 11th year of Vira Nara-simha. It relates to the same Krittivasa Ksettra, Siddheswara Matha, Bagmara Barabati, the same Durga Bhatta, Taparaja Mahāmuni, his death, Tapachakraverty, the same Uttareswara Nayaka. It explains Ekadasa-Rudra-Bhiksa as feeding Mahesvaras for propitiation of the Eleven Rudras.

It seems that Taparaja Mahamuni and Durga Bhatta Acharyya got Baghmara Barabati-bhumias Ekadasa-Rudra-Bhiksa from Bira Nara-simha Deva for wishing his long life by propitiating the Eleven Rudras. The lands were situated in

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Chola-desa Pandya-desa and Kanchi-desa, they were "MADA-MADA," partly cultivated and partly lying fallow. Taparaja Mahamuni seems to have been the head of the Siddheswara Matha in Krittivasa Ksettra or Bhubaneswar.

The Mahamuni borrowed from Uttareswara Nayaka 150 Madhas (*i.e.*, 75 tolas of gold) and 10 *petis* of paddy. But Durga Bhatta pays off the debt, capital with interest in a round sum of 180 Madhas (90 tolas of gold). Soon after Taparaja Mahamuni died and his place was taken by Tapachakraverty. Durga Bhatta on hearing this made friendship with Tapachakraverty and got this document executed. By this the land was made over to Tapachakraverty. Durga Bhatta reserving the right of getting his income from him. The document was executed on Sunday, the 7th lunar mansion of the Black fortnight of Kartika in the 11th year (corresponding 1263 A.D.) of the reign of Sri Vira Nara-simha Deva. It was also arranged that the propitiation of the Eleven Rudras to which Taparaja Mahamuni was solemnly engaged, to be continued.

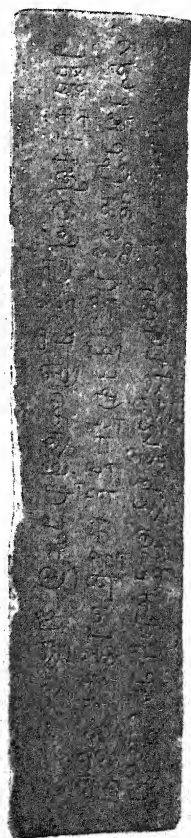
Babu Madhusudan Das, the Uriya Translator to Government, writes to say that "Bada Nara-simha Deva is, in my humble opinion, no other than Bada Rai Nara-simha Deva popularly called Languliya Nara-simha Deva of Konarak Temple fame. He is said to have conquered up to Cape Comorin, and my authority in this respect is the Madala Panji. He is the eldest son of the great Ananga Bhima Deva. Being a conqueror of Southern countries it is no wonder that he had lands to grant in Choda, Pandya and Kanchi."

The same authority says that "the language of the inscription is Daksini Uriya, by which I mean that in use in the Ganjam and Vizagapatam districts in days of yore."

"I do not know how far I have been successful in my translation for two words, viz., "Krih Seka" (L. 13-14) and "Taha ghetalla" (L. 12) could not be understood.

"All the persons concerned excepting Uttareswara Nayak seem to be of the Tamil country."

On the left side of the stone there are three lines of a Tamil inscription, but these lines are to be read from the top to the bottom in the Chinese fashion. It contains only the names of the Hindu deities.



Bhubaneswar
Stone; inscription
on left side.

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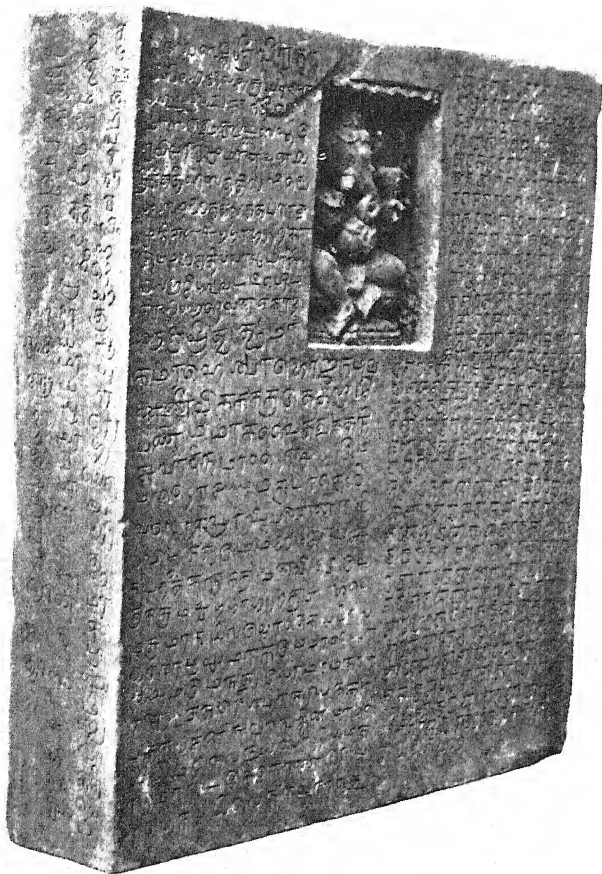
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Bhubaneswer Stone, side view.

It should not be out of place to mention herethat Mahamohopadhaya Haraprosad Sastri, M.A., C.I.E., has kindly read this inscription for me.

INSCRIPTION.

(Reading of the Bengali Portion.)

- ১। ১ স্বস্ত শ্রীবীর নর নার সীজ্য দেব
- ২। শ প্রত্ন মানে বীষে বাজে স
- ৩। স্ব ১১ শ্রী ৫ কার্ত্তিক কৃষ্ণ ৭ রবীবা
- ৪। বে শ্রীকীর্তীবাংসখেত্রং সীধে
- ৫। স্বর মঠর বড় নর সীজ্য দেব
- ৬। ক্ষর আশকামাথ পূর্বকে ২।
- ৭। বগমরা বারবাটী ভূমী একাদ
- ৮। শ রুদ্র ভীষাদেবা ভূমী সমং
- ৯। রে উপরাজ মহামুনী দুগ্ধা
- ১০। ভট আচায়েক্ষর ০ বাকলা এ
- ১১। মাত শতদেব ১৫০ উত্রেস
- ১২। র না একক্ষর তহবেতলা—
- ১৩। এমাত দশধানা পেটী ক্রীঃ
- ১৪। সেক তপরাজ মহামুনী এদু
- ১৫। ঈ দ্বাভ হুনা দুগ্ধাভটে উত্রেস
- ১৬। র না একক্ষে দেঈ অক্ষকলা এক উতী এ
- ১৭। ধান হুনা মূলকলন্তর করন্তে মাত
- ১৮। শতক অসী ১৮০ তপরাজ মুনী সী
- ১৯। ব প্রাপ্তে তপচক্রবতী স্থানাপতী দো
- ২০। ঈল্লাএ তপচক্রবতীক্ষর দুগ্ধাভট আ
- ২১। চায়েক্ষর বাসী দুগ্ধাভট আচারে
- ২২। হুনা একলাসী বোলী মৈএ পষ দে
- ২৩। ঈল্লাএ বাঘমরাভূমী বারবাটী ফ
- ২৪। ল ভোগা অসী আসতকে কীল্লাকে
- ২৫। তপচক্রবতী কী হাথ রই দুগ্ধা ভ
- ২৬। ট আচারে পাণী বীল্লাএ শ্রীবীর
- ২৭। নরনারসীজ্য দেবক্ষর আউশ কা
- ২৮। মাথে একাদশ রুদ্র ভীষাক বাই
- ২৯। বাএ ভৈষা চোড় দেস পাণ্ডী দেশ কা
- ৩০। কী দেস এ তীনী দেসে জমীল্লা দো—

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- ৩১। ই মডানডে দীর্ঘী করী আচাবর
 ৩২। দৌইল্লা তপসাহাভীবা জেতে
 ৩৩। কাল চন্দ্র সূজা ব্রত এতেক কালঙ্গর স
 ৩৪। ব্রতী বাক ০ ১১

(Reading of the Tamil Portion.)

1. svasti śrīvira Nā
2. rasim̐gadeva cutrayāṇa
3. 11 āvadu kāttikai
4. māsattu kṛṣṇasaptamī
5. ravivāra mumāna vanaṇa[
6. śrī Kittivāsattila Siddhe-
7. śvara maṛhattila katapāraja
8. munikalara Gaṁgā-bhaṭṭāraku
9. imaṛhattila Vāghramārā
10. vila bhamidhīvatti periyā
11. Nārasim̐gadevan ekāda
12. śarutraprītyartha mā-
13. ka Māheśvara-bhojanam pa-
14. nni vikka kkuḍutta bhūmi
15. paṇa māha vaittu ttani
16. suvātina mātai im
17. mātai 140 uma kurā de śi
18. valoka prāpti paṇni navi
19. da virattu mmaṛhamartta pacca
20. kavatti kulakaku ānavidattu iva
21. rukkumara Gaṁgābhaṭṭara kumāra śi
22. mai kumākayila iṇva kaile
23. dhārāpūrvvamāka ismātai
24. -40 umanadu ivara māmanārā
25. na Uttareśvara nāyakkara
26. pakkavakanata vām̐kina mā
27. ṭaiyama nil 30 poṭṭi yumātā
28. moṭu kkaṇḍa ivara
29. ra kayile nīvvārttatu.

TRANSLATION OF THE INSCRIPTION

May good attend Sri Bira Narasinh Dev in whose prosperous reign in 11 Sambat on the 7th day of Kartick Krishna (dark) Sunday in Krittibash Kshetra the following were the words of Taparaja Mahamuni and Durga Bhatta Acharjya in regard to Baghmara Barabati land of Siddheswara Math given as Ekadasa Rudra Bhiksha for wishing long life to Bada Narasinha Deva.

150 Madhas (1 Madha = $\frac{1}{2}$ tola gold) were taken from Uttareswara Nayak. These Madhas (gold) and 10 Petis (1 Peti = 20

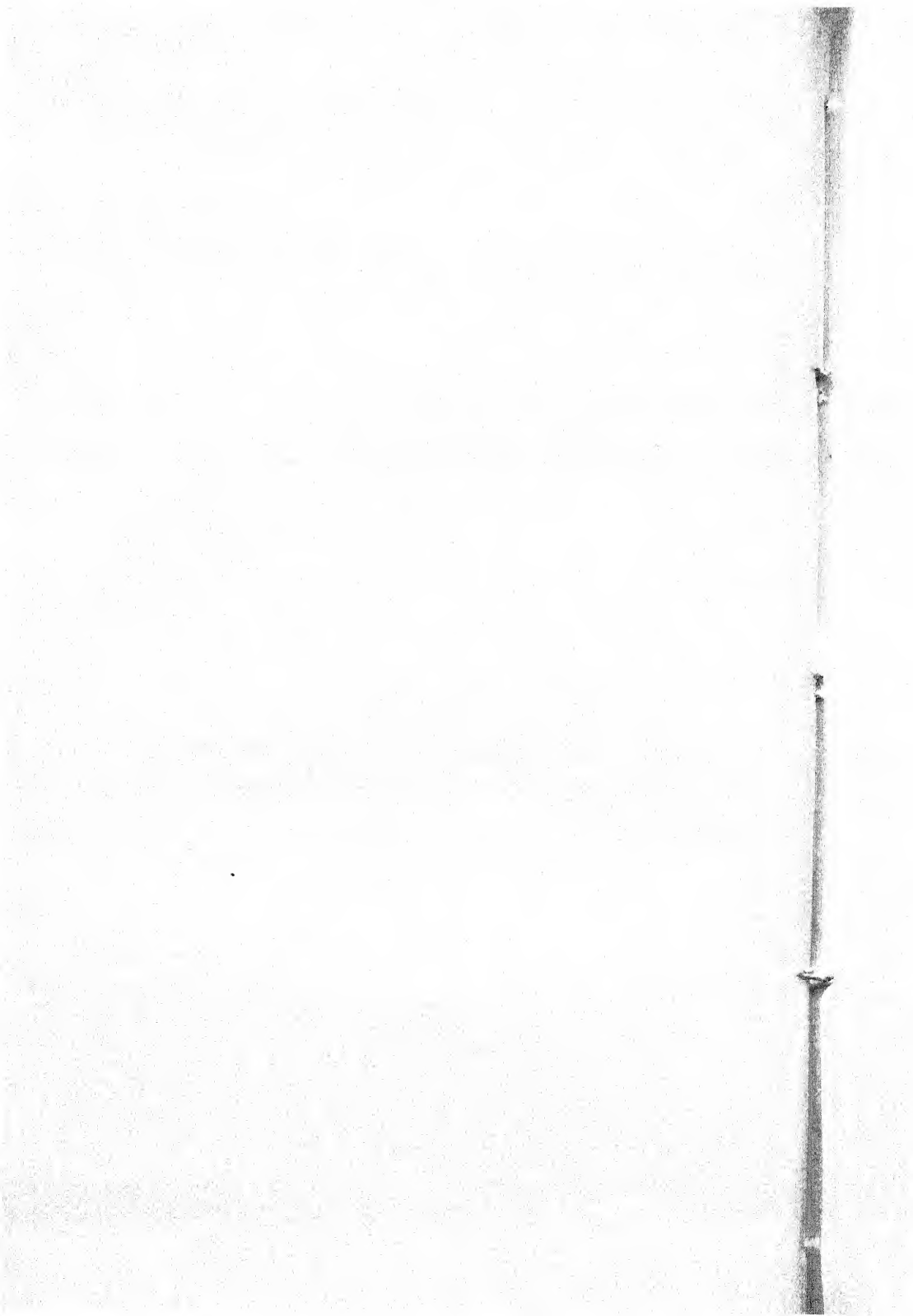
Nautis) paddy both were taken by Taparaja Mahamuni. Durga Bhatta pays this paddy and gold to Uttareswara Nayak and writes this document. This paddy and gold taken together amounts to 180 Madhas, capital being added to interest. Taparaja Muni on getting Siva (dying), Tapachakrabarty becomes Sthanapati (master of the Math). This Tapachakrabarty and Durga Bhatta Acharjya are co-residents. On hearing this Durga Bhatta Acharjya as co-resident makes friendship with him. This Baghmara Barabati land is made usufructuary for 180 (Madhas). Durga Bhatta Acharjya is to receive income from the hands of Tapachakrabarty. This land is Eka-das Rudra Bhiksha for wishing long life to Sri Bira Nara-sinha Deva. This constitutes Madamada (partly cultivated and partly lying fallow) land in three countries, namely, Choda Des, Pandya Des and Kanchi Des. Initiated in a course of austerities Taparaja Mahamuni made Achaman (sipped water). The Bhiksha of Tapasvi will last so long as the sun and moon last and the austerities of Tapasvi will also last as long. This is the word of the initiated Tapasvi. o-11.

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The Aśmakas or Assakas in Ancient India.

By BIMALA CHARAN LAW, Ph.D., M.A., B.L., F.R. HIST. S.

The Aśmakas or Assakas formed one of the Kṣatriya tribes of ancient India. They are not mentioned in the Vedic literature, but we find them referred to in the Epics and the Purāṇas. In the enumeration of the countries in Bhārata-varṣa, the land of the Aśmakas is mentioned along with those of the most prominent Kṣatriya peoples of ancient India, viz., the Kurus, Śūrasenas, etc. (Bhīṣmaparva, Ch. 9, p. 822.) In the different recensions of the Mahābhārata, the name is spelt in different ways, viz., Aśvaka or Aśmaka. In Buddhist literature the name is Assaka, which, as Prof. Rhys Davids points out, may be the vernacular equivalent of either Aśmaka or Aśvaka. The Professor observes, "The name of the tribe is ambiguous. Sanskrit authors speak both of Aśmakā and Aśvakā. Each of these would be Assakā, both in the local vernacular and in Pāli. Either there were two distinct tribes so called, or the Sanskrit form Aśvakā is a wrong reading or a blunder in the Sanskritisation of Assakā."¹ The Greek writers mention a people called the *Assakenoi* in eastern Afghanistan and the Khonar valley, with their chief town at Massaga or Maśakāvati. It is difficult to say whether they were identical with our Aśmakas.

In the Great Epic there is some confusion between the Aśmakas and the Aśvakas; some of the passages appear to contradict one another. In the Jayadrathavadhaparvādhyāya, the Aśmakas are found ranged on the Pāṇḍava side (VII. 85,3049); on the other hand, an Aśmakadāyāda, or a son of the Aśmaka monarch, is said to have been killed in battle by Abhimanyu (VII. 37,1605); and the same person is also referred to as *Aśmakasya suta* in the verse immediately following (VII. 37,1606). An Aśmakeśvara is also spoken of here (VII. 1608). In a list of the tribes conquered by Karna, the Aśmakas are mentioned along with the Vatsas, Kalingas, Rśikas, etc. (VIII. 8,237). In the Ādiparva, a Rājarsi Aśmaka, the son of Vasiṣṭha and Madayanti, the wife of Kalmāṣapāda, is mentioned, and the story of his birth, which we shall speak of in great detail hereafter, is referred to. (I. 122, 4737). The same king who is called a Vasiṣṭha is said

¹ Buddhist India, p. 28.

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to have founded Paudanya (I. 177, 6791). Pāṇini mentions Āśmaka in one of his sūtras. (IV. 1, 173).

The Āṅguttara Nikāya,¹ like the Purāṇas,² tells us that Assaka was one of the sixteen mahājana-padas of Jambudīpa. It had abundance of food and gems. It was wealthy and prosperous. From the Mahāgovinda Suttanta we learn that Potana was the city of the Assakas.³ It was undoubtedly the capital city as King Brahmadatta reigned there. Asaṅga in his Sūtrālaṅkāra mentions an Āśmaka country in the basin of the Indus. From this reference it would appear that there was an Assaka country in northern India, but in Buddhist literature we also read of a southern Āśmaka country. Thus one of the oldest works of the Pāli-Buddhist literature, the Sutta-Nipāta (verses 976-7) speaks of a Brāhman guru called Bāvari, who having left the Kosala country, settled near a village on the Godāvari in the Assaka territory in the Dakṣiṇāpatha (D. R. Bhandarkar, Carmichael Lectures, 1918, p. 4). Again, in the Sutta-Nipāta (verse 977) the Assaka or Āśmaka country has been associated with Muḷaka with its capital Paṭiṭṭhāna, and mentioned as situated immediately to the south of the latter but along the river Godāvari, as Dr. Bhandarkar points out (*Ibid*, p. 53, n. 5). Evidently the Āśmakas, or at least an offshoot of the tribe, had settled in the south on the banks of the Godāvari.

Dr. Rhys Davids points out that the country is mentioned with Avanti in the same way as Aṅga is with Magadha and its position on this list (the list of the sixteen Mahājanapadas), between Śūrasena and Avanti, makes it probable that when the list was drawn up, its position was immediately north-west of Avanti. In that case the settlement on the Godāvari was a later colony, and this is confirmed by the fact that there is no mention of Potana (or Potali) there (Buddhist India, pp. 27-28).

We have already referred to the story of the origin of Āśmaka, the founder of the tribe, as mentioned in the Mahābhārata. But in the Great Epic there is a bare reference to the story which is fully narrated in the Brhannāradiya Purāṇa. Once Sudāsa, who is often identified with the Great Rgvedic hero who won the battle of the ten kings, the great grandson of Rūpama, the seventh in descent from Bhagīratha, went to the forest for hunting. He killed a tiger. The dying tiger took the shape of a terrible monster and thought of wreaking vengeance on the

Legendary origin.

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¹ Āṅguttara Nikāya, I., p. 213, *Ibid*, IV., pp. 252, 256 and 260.

² Padmapurāṇa, Svargakhanda, Ch. III.

Viṣṇudharmottaramahāpurāṇa, Ch. IX.

³ Dialogues of the Buddha, pt. II, p. 270.

king. An occasion soon presented itself. King Sudāsa performed a sacrifice. When Vasiṣṭha, the king's priest, departed after performing the sacrifice, that monster assumed the form of Vasiṣṭha and said to the king, "Feed me with meat to-day. Prepare it, I am coming back", and then went away. The monster once more changed his appearance and appeared before King Sudāsa in the guise of a cook. He cooked human flesh when ordered by the king to prepare a dish of meat for the great Ṛṣi. The king waited for Vasiṣṭha with the cooked meat on a golden plate. When the genuine Ṛṣi Vasiṣṭha came, Sudāsa offered him that meat. Vasiṣṭha took him to be a very wicked king who could go so far as to offer him meat. Then he meditated and learnt that it was human flesh dressed up for him. He cursed the king, saying, "Knowing it to be human flesh you have offered it to me, so you will be a monster greedy of human flesh." King Sūdasa said that he had done so by his order. Vasiṣṭha sat in meditation, learnt everything and said, "You will have to remain a monster only for twelve years and not for ever." The king was about to curse Vasiṣṭha but Madayanti, his queen, entreated him to forbear and appeased his wrath. The king washed his feet with the curse-water. His legs turned black. Thenceforward he was famous as Kalmāṣapāda. Every third night the king took the shape of a rākṣasa and strolling about in the forest used to kill human beings. One night in spite of the requests of a Brāhmaṇī, he ate up her husband. The Brāhmaṇī cursed him, "You will die at the time of union with your wife." After the expiry of twelve years the king was freed from the curse of Vasiṣṭha. The king recollected the curse of the Brāhmaṇī and refrained from approaching the queen Madayanti. At his request Vasiṣṭha caused the conception of the queen. Seven years elapsed but delivery did not take place. Then Queen Madayanti struck the womb with an "āsma", or a piece of stone, and a son was born who was named Āsmaka. Āsmaka's son was Mūlaka. Having been saved by naked women, who surrounded him, he was named Nārikavaca. His great grandson is said to have been Dilipa, the forefather of the famous hero of the Rāmāyaṇa. Thus a connection is established between the Ikṣvākus and the Āsmakas (Bṛhannāradiya Purāṇa, Ch. 9).

In the Bhaviṣyapurāṇa also Āsmaka is mentioned as the son of Sudāsa. It is probable, as we have suggested before, that the Assakas were an offshoot of one of the great Kṣatriya families of the early times.

The Matsya-Purāṇa (Ch. 272) gives us a list of twenty-five Āsmaka kings, contemporaries of the Śiśunākas, who reigned in Magadha before the Nandas. Apparently, about this time the Āsmakas had risen into prominence and taken their place beside the royal dynasties of northern India.

One of the Jātakas relates the following story about a king Assaka. In Potali, the capital of Assaka, there reigned a King Assaka. He had a queen of unique beauty. At her death, the king was overwhelmed with grief.

At this time, the Bodhisatta dwelt at the foot of the Himālayas. With his heavenly vision he saw the king lamenting, and moved to pity; he came to a park where he met a young Brahmin who told him that the king was lamenting the loss of his queen. The Bodhisatta said that he could show the king his queen and even make her speak to him. The young Brahmin informed the king who hastened to the spot. The Bodhisatta showed him his queen who after death was leading the life of a tiny dung-worm. Upon the king making himself known to his whilom beloved queen, the dung-worm told him in human voice that she no longer loved the king; for dearer to her was the worm. The king was astonished. The Bodhisatta instructed him and left the place for the Himālayas (Cowell, Jātaka, Vol. II, pp. 108-110).

Another story of the Assaka country and its connection with Kālīṅga is narrated in the Jātakas. Assaka was the king of Potali in the Assaka country. At this time Kālīṅga was reigning in the city of Dantapura in the Kālīṅga kingdom. Kālīṅga had four daughters of surpassing beauty, whom he ordered to sit in a covered carriage to be driven to every village, town and royal city with an armed escort. Kālīṅga declared that if any king would be desirous of taking them into his harem, he would put up a fight with him. Passing through various countries, they reached Potali in the Assaka country. The gates were closed against them, but were opened by order of Nandisena, the able minister of the king of Assaka. The four princesses were brought to the king who was asked by his minister to make them his chief queens. Accordingly, these fair princesses were raised to the dignity of queen-consorts and a message was sent to Kālīṅga. King Kālīṅga, on receipt of the message, set out with a great army and halted within the limits of his own territory and Assaka also kept within his. A great battle was fought. Through the diplomacy of Nandisena, Assaka defeated Kālīṅga who then fled to his own city. Assaka demanded from Kālīṅga a portion of the dowry received by his daughters who were royal maidens. Kālīṅga sent a befitting portion of it for his daughters to Assaka. Thenceforth the two kings lived amicably (Cowell, Jātaka, III. pp. 2-5). This story shows that the Assakas and the Kālīṅgas were neighbours and that their countries bordered on each other. Evidently, it is the southern Assaka country on the Godāvāri that is here referred to.

The Vimānavatthu commentary tells us a story of an Assaka king who was ordained by Mahākaccāyana. In the

kingdom of Assaka, there reigned a king named Assaka whose capital was at Potananagara. He promised

Story of the ordination of a prince of Assaka.

to grant a boon to his younger wife. When his son named Sujāta by his first wife, was sixteen years of age, his younger wife reminded him of his promise and prayed that Sujāta should be banished and sent to a forest and her son should succeed him to the throne. The king was vacillating, but at last Sujāta was sent to a forest where he met Mahākaccāyana in a hermitage. Being instructed by Mahākaccāyana in Dhamma, he became a bhikkhu afterwards (Vimānavatthu Commentary p. 259 foll.).

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Riddhapur Plates of the Vākātaka Queen Prabhāvati-guptā: the 19th year.

By Y. R. GUPTA, B.A.

Sardar Abasaheb Muzumdar, Secretary of the Bhārata-Itihāsa-Saṃśōdhaka-Manḍala, requested me when on a short visit to Poona in 1923 to deal with two inscriptions of which the present one is of absorbing interest. Though I was almost laid up at the time, the importunities of the Sardar prevailed and I promised to undertake the task. The Manḍala is of late collecting valuable documents, the importance of which can hardly be overrated. I am indebted to the Secretaries of it for allowing me to edit this record. A preliminary article on it in Marāṭhi is embodied in Vol. III¹ of the Quarterly of the Society. It had been kindly read for me at its 11th Conference by Prof. D. V. Potdar, B.A. A summary of it appeared in the JRAS² (London) and in the February number of the Ind. Ant. for 1924 (Bombay). The present is an English version of it with modifications and additions written for the Bengal Asiatic Society at the instance of Dr. D. R. Bhandarkar, Ph.D., and Mr. K. N. Dikshit, M.A., Superintendent, Archaeological Survey, Eastern Circle, who were much delighted to hear of the discovery of the plates.

The originals were found in the possession of Mahānta Dattarāja, a Mahānubhāva saint. They were discovered at Rithpur (Riddhapur of the Mahānubhāvas) in the Morvi Taluk Umraoti district of the Central Provinces. Having cleaned them I took ink-impressions.

There are altogether four copper-plates, 6½" long, 3½" broad and ⅛" thick. They are substantial. The first and the fourth plates have no writing on their outer sides, the second and the fourth carry writings on both sides. The first plate contains 5 and the fourth 3 lines of writing. The remaining ones have 6 lines on either side. There are circular ring-holes ⅞" in diameter; but nothing is heard of the ring or the seal. Fortunately, however, a seal of Prabhāvati-guptā is known from another record. (Ep. Ind. Vol. XV, p. 41.) The weight of the 4 plates is 115 tolas.

The letters are well cut and well preserved on the whole. They do not show through on the backs of the plates. The average size of them varies from ¼" to ½". But 4 lines on the first copper plate and 2 on the second are engraved in bolder

¹ Nos. II-IV, p. 89-96.

² For January, 1924.

characters varying from $\frac{5}{16}$ " to $\frac{13}{16}$ ". But this irregularity is found in other grants as well.¹

The alphabet is of the box-headed type in which most of the inscriptions of the Vākātakas are engraved and which was current in the Central Provinces from the 5th century onwards. The heads of the letters are small squares and are hollow. The peculiarities of these characters are (1) the contraction of the breadth of the letters and (2) the conversion of the older curves into angular strokes. Though the Southern characteristics are most prominent, the influence of the Northern script is clearly discernible.

The Southern characteristics observable in the present grant are these :

(1) The retention of the ancient forms open at the top of *gha*, *pa*, *sha* and *sa*, of the old *ma* and tripartite *ya*. Cf. *gha* in *Ghaṭṭkacas* = in 1, 2, and = *vyāghātāṃ* (h) in 1, 21; *pa* in *putrō* 1, 2, and *paripālanaṃ* in 1, 25; *sha* in *mahishī* in 1, 9, and *varsha* in 1, 11; *sa* (n) *duu* (do) *ha* (h) in 1, 18 and *sanidhānaṃ* in 1, 20; *Ma* in *Mahārāja* in 1, 2, and *scalpām-api* in 1, 23; *ya* in *ubhaya* in 1, 8 and *kārayēta* in 1, 23.

(2) The retention of the long stroke on the right of *la* which is bent towards the left. Cf. *la* in *pādamulāt* in 1, 1, *Nāgakul* in 1, 8; *ubhaya-kul* = *ālankāra* in ls. 8 and 9, *kuśalam* in 1, 13; *a-lavaṇa* in 1, 19.

(3) The *ḍa* with the round back. Cf. *ḍa* in *sadaṇḍa* in 1, 24.

(4) The medial *ṛi* with a curled curve on the left. Cf. *ṛi* in *parihṛita* (h) in 1, 30 and *parigrihita* (ō) in 1, 3.²

(5) The form of *ṇa*. Cf. *ṇa* in *sabra* (ā) *hṃaṇa* in 1-12, *putrāṇā* (m) in 1, 14; *a-lavaṇa* in 1, 19 and *pramāṇaṃ* in 1, 27.

The northern influence can be traced from the following points :—

(1) *Ga* and *śa* with serif-like bends at the left down-strokes. Cf. *ga* in *-nagarē* in 1, 12, *-bhuktak-ābhōga-* in 1, 16, *gavām* in 1, 28; *śa* in *-varsha-śata* and *śra* (ī) in 1, 11, *śāsan-ēnō* (-ā) in 1, 16 and *śata-* in 1, 28.

(2) *Kha* with a small hook and a big loop. Cf. *kha* (ā) in *khānaka* (h) in 1, 19 and *likhitam* in 1, 31.

(3) *Na* with a loop and *ta* without a loop. Cf. *na* in *Vākātakānām*-1, 10, *śāsanēnō* (n-ā) in 1, 16; *ta* in *rājānumatān* in 1, 17 and *harēta* in 1, 28.

(4) *Dha* in *baddham* in 1, 16.

(5) The mātras above the line with peculiar tails as *ē* in *-ōcchhētā* in 1, 6, *mahādēvi* in 1, 11, *āvēdita-* *syā* in 1, 24; *ai* in *Taittiriya-* in 1, 14 and *ō* in *-utpannō* in ls. 4 and 7; though

¹ For instance *vide* the 5th plate (facing p. 249, *Corpus Inscriptionum Indicarum* Vol. III) of the Siwani plates of Mahārāja Pravarasena II.

² *Indian Paleography* by Dr. J. G. Bühler, edited as an appendix to the *Ind. Ant.* Vol. XXXIII, 1904, by Dr. J. F. Fleet, p. 61.

sometimes they are marked below as in the Southern script as in ē in -vimśatimē in l. 30 and ō in -Dāmōdarasēna- in l. 10.

(6) The turn of the medial i to the left. Cf. i in Kōśika- in l. 12, -parihārā (a)- l. 19.

The mātras of la, the forms of ñ and ba and the loops of tha at the foot of it as well as the loops attached to the right side of it as in the archaic Granth variety are noticeable features. Cf. l of li in likhitam, l. 31 ; ñ in saṅkalp-ādhiyōga in l. 26 ; ba in Kubērā (a) in l. 8, in paribādha. (m) in l. 23, Brāhmaṇair in l. 24, -pibati in l. 29.

Initial us occurs in ubhaya- in l. 8, uchitāmś -chāsya in l. 16 ; the initial ē is found in ēkōna- in l. 30 ; and the initial ai in aihik- in l. 13. There is a sign for interpunctuation, viz., two vertical lines in l. 1, and another, viz., a short horizontal one in l. 16, the close of the record being expressed by a zigzag line below a dot l. 32. A final m is denoted by the usual sign for ma, the much reduced size of the letter shewing the difference. Cf. m in vasundharām in l. 28. A letter left out by mistake is added just below the line from which it is omitted and almost touches the letters between which it should have been engraved.

With regard to orthography we may note that the consonants—with the exception of the sibilants-following r are doubled : -sarvva- l. 5, maryyādān-, l. 17, charmm-āṅgāra (h)-, l. 19 and kirttayāmaḥ, l. 26 ; but varshaśata-, l. 11, and saḥakar-shaka- l. 15. The second letter of a class following r is replaced by the first and the fourth by the third, parihārārttham, l. 26 and varddhayitavyaś-, l. 22. A final visarga is changed into the following sibilant, -pradas-sarvva- l. 5, -kriyābhis -sa (m) rakshitavyaḥ-, l. 22. An anunāsika is generally preferred to an anusvāra, -Chandra-guptas- l. 7, ubhayakul-ālāṅkāra- l. 8, -charmm-āṅgāra (h), l. 19, bhuñjatā, l. 21. The form vimśatimē is irregular but is met with in inscriptions.¹ The writing of sa instead of sha in karisyāmaḥ in l. 24 instead of karishyāmaḥ and the spelling Prabhusiṅghēna instead of Prabhusimhēna are Prakritisms. The upadhmāniya occurs 5 times svāmināḥ-pāda, l. 1 ; apratirathaḥ-parama-, l. 6 ; sa [m] rakshitavyaḥ-parivarddhayitavyas- l. 22 ; ślōkaḥ-pramāṇam, l. 27 and hantuḥ-pibati, l. 29. There are a few places where the engraver has misread his draft. Thus we find visviparihārā- instead of viṣṭiparihāra- l. 19, anit-ānēka- for atit-ānēka- l. 25 and vartta-mā -nām-ājñāpayāmaḥ for varttamānān-ājñāpay-āmaḥ, l. 27. In a few cases the sandhi rules are ignored : utpannā ubhaya- l. 8, putrānā [m] abhyañtara- l. 14, a-karadāyī a-bhaṭa- l. 18.

The language is Sanskrit. Except one standard verse on the subject of the sin of confiscating grants, the inscription is in prose.

¹ Vide foot-note 10, p. 42 Vol. XV, of the Ep. Ind.

The inscription is a record of the great queen Prabhāvatī-guptā, daughter of Chandra-gupta II of the Imperial Gupta dynasty and the chief queen of Rudrasimha (II) of the Vākātakas. Mr. K. N. Dikshit has already pointed out that the shortening of the last vowel of Prabhāvatī before guptā is quite in accordance with the rules of grammar. (Ep. Ind. Vol. XV, p. 42). To judge by the wording of the grant edited by Prof. Pāthak and Mr. K. N. Dikshit and of this document it is evident that the great queen took pride in saying in so many words that the Gupta blood ran in her veins. Still she vaunted that she was the jewel of both the families, the Guptas and the Vākātakas. The expression sāgra-varsha-sata diva-putra-pōtrā need not be interpreted too literally. Dr. Vincent A. Smith's comment on the interpretation of a similar expression is worthy of note (JRAS for 1914, p. 324). What is meant here is that Prabhāvatī-guptā lived for a long time and saw illustrious sons and grandsons or saw sons and grandsons and will live in heaven (that is will be rewarded with a residence in heaven) ¹

The grant edited by Prof. Pāthak and Mr. Dikshit (Ep. Ind. Vol. XV, p. 40) was made on the 12th day of the bright half of Kārttika in the 13th year. The authors explain: "This might be either from the accession of Rudrasēna II or from that of the young prince in whose name the queen mother was ruling: the former supposition appears to be more probable." On the analogy of the record with which we are dealing, the 13th year should be that of Divākarasēna. Dr. Fleet has edited two grants of Pravarasēna II, viz., Chammak and Siwani copperplate inscriptions both of his 18th year. (Corpus Inscriptionum Indicarum, Vol. III, pages 235-249). The present inscription is dated in his next year. It notes the fact that Prabhāvatī-guptā was the mother of Dāmōdarasēna Pravarasēna. (Dāmōdarasēna-Pravarasēna-janani). The question arises whether Divākarasēna was the same person as Dāmōdarasēna. In Dr. Vincent A. Smith's opinion 'Divākarasēna may possibly have succeeded (Rudrasēna II) under the title of Pravarasēna (II) but it is more likely that he died young and that Pravarasēna was his brother.' (JRAS, 1924, pages 327 and 328.) He may either have been dead by this time so that the queen avoided his remembrance and omitted his unhappy name from permanent records after he departed from this world or he may be the same person as Dāmōdarasēna. The possibility that she had three sons, viz., Divākarasēna, Dāmōdarasēna, and Pravarasēna in the name of all of whom she ruled is not altogether precluded. Pravarasēna was fortunate to sway

¹ Cf. my translation.

power himself also, in as much as he reigned for 23¹ years at least including his mother's regency.

The inscription records a grant of land with agricultural sheds to Brāhmanas of the Taittiriya branch and Pārāsara gōtra living in Aśvatthanagara on the way to Kōśika. The queen when she made it was encamped at Rāmagiri. The dūtaka—² the executive officer—was Vēvandasvāmi. The document was written out by Prabhusimha spelt Prabhusiṅgha.

The most interesting point is that the plates purport to have been issued from the feet of the lord of Rāmagiri which must evidently be the same place referred to by Kālidāsa in stanza 1 of the Pūrva-mēgha, viz., :—

Kaś = chit = kāntā-viraha-guruṇā svādhikārāt = pramattah
Sāpēn = astaṅgāmīta-mahimā varsha-bhōgyēṇa bhartuḥ
yakśś = chakrē janaka-tanayā snānapuṇy = ōdakēshu
snigdha-chchhāyā-tarushu vasatim Rāma-giry-āśramēshu || 1 ||

In our record the form of the place is the most unadulterated one. The date of Kālidāsa can hardly be far removed from that fixed by Prof. K. B. Pathak. Though this inscription is an earlier one it is very reasonable to suppose that Rāmagiri continued to be a place of resort for saints and was frequented by the devotees of Rāma, the god worshipped on the spot. Much has been said about it. Several modern equivalents have been suggested. Rai Bahadur Hiralal, retired Deputy Commissioner, Nagpur, has exhausted the names in an article published in 1915 in the *Hitakārini* of Jubbulpore. He still thinks with Dr. Wilson that Rāmatēk, 24 miles north of Nagpur city, has better claims than all the other sites.³ Mallināth, the commentator, identified it with Chitrakūṭa. Prof. Pāthak remarks:—"But recent archaeological explorations point to Rāmgarh hill in the Central Provinces as the place intended by the poet owing to its extreme proximity to Amrakūṭa or Amarakantaka, the source of the Narmadā river. (See *Modern Review*, October 1915, pages 379-386.)" [Mēgh-dūta by Prof. K. B. Pāthak, B.A., Second Edition, 1916, p. 71.] But the location of Rāmagiri attempted in the JRAS⁴ and the Ind. Ant.,⁵ it would appear, suits well the description of Kālidāsa. Kōśika or Kōśī need not necessarily be anywhere near Aśvatthanagara or Rāmagiri. Only the road by which it lay, led to Kōśika. Nasik for instance is on the Bombay Agra road though it is far off from Agra. Still, as I am not familiar with the province I am not in a position to throw much light

¹ Vide Dr. Smith's statement, JRAS, 1914, p. 328.

² Cf. Manu VI, 63-65 where the dūta is mentioned as a principal minister on whom a king could rely.

³ His private letter addressed to me dated 24th March 1924.

⁴ For January 1924.

⁵ For February 1924, p. 48 (Vol. LIII, p. 48).

and localise with certainty *Āsvatthanagara* or *Kōśika*. A suggestion may be offered that *Asatpur* in the *Ellichpur taluka* in the *Central Provinces*, in which *Chammak* is situated,¹ may perhaps be the modern equivalent of the former.

Lines 30 and 31 contain the date, viz., twelfth day of the bright fortnight of the month of *Kārttika* in the nineteenth regnal year of the illustrious great king *Pravarasēna* of the *Vākātakas*.

The plates annexed hereto, giving a facsimile of the record,—have been prepared under the supervision of Dr. D. R. Bhandarkar, Ph.D., and Mr. K. N. Dikshit, M.A., Superintendent, *Archæological Survey, Eastern Circle*, from the ink-impressions made by me while in *Poona*.

TEXT.²

First Plate; Second Side.

- 1 जित(तं) भगवता ॥ रामगिरिखामिन + पादमूलाद्भुतान(ना) मादि[-]
- 2 राजो महाराजश्रीषट्ठोक्तस्तस्यपुत्रो महाराजश्रीचन्द्र[-]
- 3 गुप्त[ः] तस्य पुत्रस्तत्पादपरिगृह्यौत(तो) लिच्छविदो(दौ)हित्रो
- 4 महादेव्या(यां)कुमारदेव्यामुत्पन्नो महाराजश्रीसमुद्रगुप्तस्तस्य पुत्र[-]
- 5 स्तत्पादानुध्यातो न्यायागतानेकगोहिरण्यकोटिसहस्रप्रदस्सर्व[-]
राजो[-]

Second Plate; First Side.

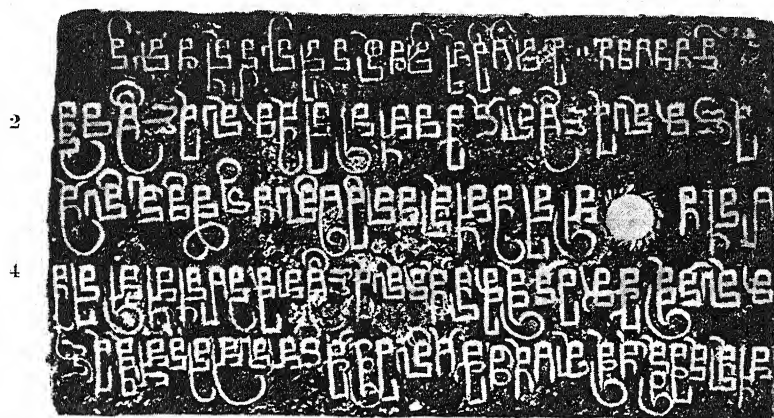
- 6 च्छेत्ता पृथिव्यामप्रतिरथ + परमभागवतो महादेव्या(यां) दत्त[-]
देव्यामु[-]
- 7 त्यनो(न्नो) महाराजाधिराजश्रीचन्द्रगुप्तस्तस्य दुहिता धारणसगोत्रा
- 8 नागकुलो³ तन्नाया(यां) कुबेरा(र) नागदेव्यामुत्पन्ना उभयकुलाल[-]
- 9 झारभूता वाकाटकाना(नां) महाराजश्रीरुद्रसेनस्यायमहिषी
- 10 वाकाटकानाम्महाराजश्रीदामोदरसेनप्रवरसेनजननी भगव[-]
- 11 त्पादानुध्याता सायवर्षशतदिवपुत्रपो(पौ)त्रा अ(श्री) महादेवी⁴
प्रभ(भा) वति[-]

¹ It is worthy of note that *Chammak*, where a grant of the *Vākātika Mahārāja Pravarasēna II* (*Corpus Inscriptionum Indicarum*, p. 236 and Plate and Ep. Ind., Vol. V, p. 84) was discovered, is situated in the same taluka as *Asatpur*.

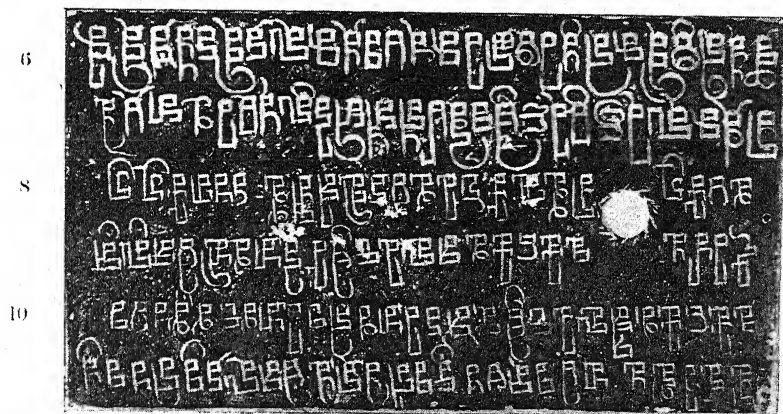
² From the original Plates.

³ About the enlightened policy of the *Guptas* in contracting matrimonial alliances with the races conquered or brought under control such as the *Nāgas* and the *Vākātakas* vide Dr. Smith's remarks in the *JRAS.*, 1914.

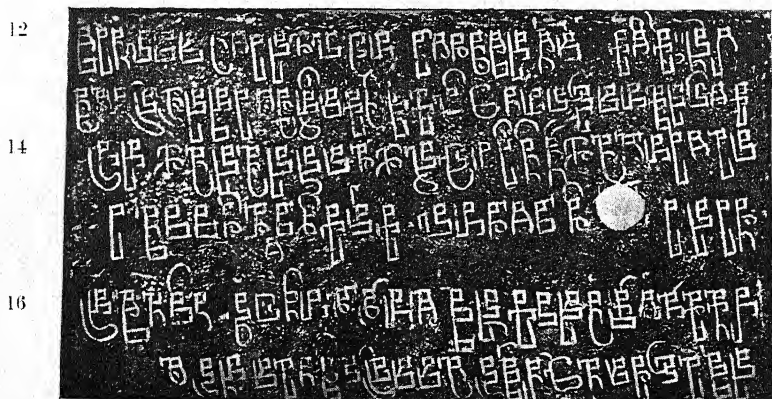
⁴ In the grant issued by the queen in *Divākarasēnas* time, she called



First Plate ; Second side.



Second Plate ; First side.



Second Plate : Second side.

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Second Plate; Second Side.

- 12 गुप्ता कोशिकमार्गं अश्वत्थनगरे सव्रह्म-(ब्राह्म)णपुर(रो)गग्राम[-]
महत्तरा(रां)श्च
- 13 कुश्लमुक्ता सम(मा) ज्ञापयत(ति) ऐहिकामुन्निकमस्मिन्नगरे
खपुण्याप्यायनात्य(थं)
- 14 पराशरसगोत्राणा(णां)तैत्तिरियब्राह्मणानामप्य(प्या) पुत्रापुत्राणा[-]
(णां) अभ्य[-]
- 15 न्तरपुरनिवेशने सहकर्षकनिवेशनानि च चत्वार[-]
- 16 भुक्ता(क्त) काभोग¹क्षेत्रमुदकपूर्व(र्वं) शासनेनो(ना) स तिवह्रं[-]
उचितांश्चास्य
- 17 पूर्वराजानुमताञ्चातुर्विध्य(द्या) ग्राममर्यादान्वितरामस्तद्यथा

Third Plate; First Side.

- 18 अकरदायौ अभटच्छत्रप्रावेश्य(श्यं) अपुष्यक्षौरस(सन्)दौ(दो)ह(हः)
अचारा[-]
- 19 सनचर्माङ्गार[:]² अलवणस्निग्ध(न्न) क्रेण्णिख(खा)नक[:] सर्व्वविस्त्रि[-]
(ष्टि)परिहारा(र)[-]
- 20 परिहृत(तः) सनिधानं सोपनिधानं सङ्कृतोपकृतमाचन्द्रा[-]
- 21 दिव्यकालौघ (नः) पुत्रपो(पौ)त्रानुगामौ भुङ्गता न केनचिद्वाघात[-]
- 22 म्कः(ः)क¹र्तव्य[:]—सर्व्वक्रियाभिस्स (सं)रक्षितव्य + परिवर्धयितव्यश्च
यश्च(श्चा)स्मा (स्म)[-]

herself only a queen and not a great queen (Mahādēvi). Vide Ep. Ind. Vol. XV, p. 41.

¹ Here apparently the number of times the field yielded crop was sufficient to identify it. It is better to name the field a chatvāra-bhukak-abhōga-kshētra. In the Talēśvara copperplates I edited, the fields were called as vajra-sthala-kshētra-kulya vāpaṁ, Kēdāra-kulya-vāpaṁ and so forth where vāpa is preceded by a word denoting a measure. (Ep. Ind., Vol. XIII, p. 119.)

² -charm-āṅgāra, khānaka (h) and other adjectives, if the construction is not to be considered faulty, must be construed with grāma understood. As a matter of fact the whole village is not granted, nor a mere field. One field together with agricultural sheds or houses are bestowed upon Brāhmanas.

- 23 च्चासनमगणयमान[ः] स्वल्पामपि परिवाधा(धां) कुर्यात्कारयेत्
वा तस्य

Third Plate; Second Side.

- 24 ब्राह्मणैरावेदितस्य सदगुडनिग्रहं करिष्या(ष्या)मः अस्मि(स्मिं)श्च
धर्मादर[-]

- 25 करणे अनी(ती)तानेकराजदत्ता(त्त) सञ्चित(न्त)नपरिपालनं
पुण्यानुकीर्तन[-]

- 26 परिहारात्थं न कीर्त्तयाम[ः] सङ्कल्पार्थयोगपराक्रमोपजि[-]

- 27 तान्वर्त्तमानामा(ना)जापयामः—व्यासगीतश्चात्र प्रलोक + प्रमाणं

- 28 खदत्ता(त्तां) परदत्तां वा यो हरेत् वसुन्धराम् [I] गवां शतसहस्रस्य

- 29 हन्तु + पिबति दुष्कृतमिति । वाकाटकाना(नां) महागानश्रीप्रवर

Fourth Plate; First Side.

- 30 सेनस्य राज्यप्रशस्तस(सं)वत्सरे एकोनविंशतिसे कार्तिकमा[-]

- 31 सशुक्रपक्ष्वाद्वादश्या(श्यां) [I] दूतक(को) वेवन्दस्वामौ [I] लिखितं

- 32 प्रभुसिद्धे(सिंहे)न ।-

TRANSLATION.

(Lines 1-12.) Success has been attained by the Holy one. From the heel of the Lord of Rāmāgiri; the illustrious great² queen Prabhāvatī-guptā of the Dhārāṇa gōtra begotten on the queen Kubēranāgā, the latter born of the Nāga family, a jewel of both the families (of the Guptas and the Vākāṭakas) meditating on the feet of the Divine one, who has sons and grandsons, a life of full hundred years and will (in the end) live in heaven (or in case Diva has been engraved for Divya:³ who has renowned sons and grandsons and who has lived a life of full hundred years), the daughter of the illustrious Chandra-gupta (II) the lord of the great kings, the great devotee of the Divine (Vishṇu); the bestower of many thousands of crores of

¹ It is clear from the expression -Pravarasēnasya rājya praśāsata sarāvatsarē that the year meant is the regnal one of Pravarasēna.

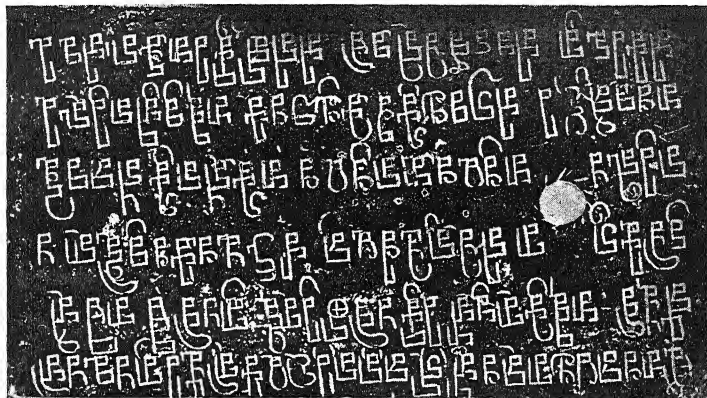
² The expression Mahādēvī does not appear in the grant edited by Prof. Pāthak and Mr. K. N. Dikshit.

³ It is likely that Diva may stand for Dēva. In the Sarnāth inscription where a king's honorific title is copied in the case of Buddha we have Dēvaputravatō (Archaeological Annual for 1916 p. 125). Here Diva (Dēva) putravatō would mean who had and has sons and grandsons as (reigning) kings.

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Third Plate ; First side.

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28



Third Plate ; Second side.

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Fourth Plate ; First side.

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cows and gold obtained by good government (or by just means) the exterminator of all the kings, unequalled on the (whole) earth, born of the great queen Dattadēvī, who meditated on the feet of the illustrious great king Samudra-gupta, who was the son of the latter, begotten on the great queen Kumāradēvī, grandson (daughter's son) of the Lichchhavi (lord), who always caught hold of the feet of the illustrious Chandragupta (I), who was the son of the latter, the son of the illustrious great king Ghaṭōtkacha who had Gupta as the first King.

(Lines 12-13.) After saying a word about her welfare directs the citizens including Brāhmanas and great men of the village in the town of Aśvattha-nagara on the way of Kōsika : (lines 13-16) Be it known to you that on the 12th day of the bright fortnight of the month of Kārttika of the Nineteenth year of the reign of the great king, the illustrious Pravarasēna of the Vākātakas, we have, to acquire for ourselves religious merit in this world and in the next, given to Brāhmanas whose gōtra is the same with Parāśara (i.e., of the Pārāśara gōtra) of the Taittiriya branch, their sons and grandsons (i.e., descendants) while our camp is located here, the field Chatvāra-bhuktak-ābhōga with the sheds of the agriculturists¹ as a grant not previously made.²

(Lines 16-24.) We grant the fixed usage incident to a village belonging to a community of Chāturvidyas approved of by former kings namely it is not to pay taxes, it is not to be entered by soldiers or umbrella-bearers ; it does not carry with it (the right to) the abundance of flowers and milk (or to the wandering about or sitting down) hide, charcoal, (the right of) the miners for exchanging fermenting drugs³ (or the miners for the purchase of salt in a moist state in case klinna is a mistake for klinna), free from forced labour,⁴ with treasures and deposits, with fixed and accessory rights ;⁵ it is to endure for the same time with the Moon and the Sun ; it is to follow (the succession of) sons and grandsons (son's sons). The enjoyment of it⁶ should not be obstructed by any body. It should be protected and increased by all means. Whoever disregarding our grant shall give or cause to to given slightest annoy-

¹ Karshaka L, means an agriculturist.

² Śāsanēnē (n=ā) satibaddham is apparently=Apūrvadatya of the Chammak copper plate inscription, Corpus Inscriptionum Indicarum p. 238.

³ Dr. Fleet has translated a-lavaṇa-Klinna-KKṛēṇi-Khānaka (h) by (the right) to the mines for the purchase of salt in moist state. But it must be remembered that the word for a mine is khānika (and not khānaka). Khānaka, means a miner.

⁴ Cf. the word Vēthi in Marāṭhī which comes from Vishiti.

⁵ Klīpta and upaklīpta are generally not translated. But I think they mean fixed and accessory rights.

⁶ Bhuñjayatā=Bhuñjayamanō, Line 31 or the Siwanī grant, Corpus Inscriptionum Indicarum, p. 247.

ance, shall be punished by us and fined on a complaint being lodged by Brāhmans.¹

(Lines 24-32.) And in this act of showing regard for religion² (or out of respect for religious merit), we do not refer to our protection and care of grants made by many kings who are dead and gone in order to avoid mention of religious merit (or good works). But we make a request to future (king) won over by expectation of advantage from a pious act, sincere devotion and prowess. And a verse sung by Vyāsa is to be taken as an authority in such matters: "Whoever confiscates land given by himself or others incurs the sin of a killer of hundred thousand cows." The dūtaka—executive officer—(of this charter) is Vēvandasvāmi. This (charter) is written by Prabhusiṅgha (Prabhusiṅha).

¹ Avēdana is a legal term meaning a plaint.

² Siwanī grant reads Dharm-ādhiḥaranā, lines 35, 36 Corpus Inscriptionum Indicarum, p. 247.

Rig Veda X. 40, 10.

By BRAJA LAL MUKHERJEE, M.A.

The import of the above stanza was discussed in 1900 by Maurice Bloomfield in the *American Journal of Philology*, but I am afraid no definite result was arrived at. The stanza runs as follows :—

jivam rudanti vi mayante adhware
dirghāmanu prasitim didhiurnarah
vāman pitrbhyo ya idam samerire
mayah patibhyo janayah pariṣvaje.

This is one of the stanzas composed by the female Ṛsi Ghosā in honour or in praise of the Aśvins. It must be admitted that even before the final compilation of mantras, the Aśvins were known to bestow boons for male progeny, or a bridegroom, and that it was with the motive of securing such boons by propitiating the Aśvins that Ghosā composed the sūkta in which this stanza finds a place. Nine stanzas precede the one in question. If the whole hymn has to be taken as a whole—as undoubtedly it must be taken,—then this stanza will have to be interpreted with reference to the context. Now, let us see whether and how we understand the context. The Aśvins are invoked, and lauded; their praises are sung; the authoress recites how the Aśvins secured a bridegroom for Sundhyu, and how that they granted a son to Badhrimati and how that they had performed other miracles. Now, listen to what Ghosā says. She sees the beauty of Nature—its youth—its bellowing cataracts flowing down from the skies and the earth in all her gladness receiving the waters; she sees how the plants grow in all their beauty. She sees the correlation of man and woman. She asks the Aśvins for a bridegroom. She says :—

janiṣṭa yoshā patayat kanīnako
vi cāruhan virudho dāmsanā anu
āsmā riyamte nivaneva siṁdhavo—
smā ahne bhavati tatpatitvanam.

(R. V. X. 40, 9.)

What is the sense of this stanza? Ghosā says: Here is a youthful girl; let a husband approach her. For her let plants grow with the rains and let the rivers flow. But how does it concern the Aśvins? It does—and that very greatly too; Ghosā is asking the Aśvins to secure a husband. The plants are growing, the rivers are flowing; fitting season this for man

to meet woman, and the Āsvins are asked to send the man to the woman; let nature rejoice. Let femininity rejoice; let woman's complement be found. The complement of the feminine is the male. Let the male be found. Let the Āsvins find the male. Next, we approach the stanza in question. It must have a meaning. Ghosā said something, and must have meant something. Now—What was it? What did she say? What could she have said after she uttered the cry on behalf of the female side of nature. We do not perhaps understand her vocabulary, nor her grammar, but yet,—let us make an attempt. We have great masters before us—and perchance we may succeed.

The interpretation of this stanza ascribed to Sāyaṇa is as follows:—

हे अश्विनौ युवयोरनुग्रहाद् ये नरः पतयो जायानां जीवमुद्दिश्य
रुदन्ति । रोदनेनापि जायानां जीवनमेवाश्नासत इत्यर्थः । ता जाया
अध्वरे यज्ञे वि मयन्ते निवेशयन्ति च किञ्च तासु दीर्घा महतौ प्रसितिं
भुजयोः प्रवन्धनमनुदीधियुः अनुदधति इदं वामं वननीयमपत्यं पितृभ्यः
समेरिरे संप्रेरयन्ति च तेभ्यः पतिभ्यो जनयो जायाः परिख्वजे परिख्वगार्थं
मयः सुखं कुर्वन्तीति ॥

The text has the word *jivam* but Sāyaṇa adds *jāyānām*. Sāyaṇa adds also *rodanenāpi jāyānām jivana mebāśāsata ityarthah*. In explaining *vi mayante*, he adds *tā jāyā adhware yagñe nīvesayanti*. He explains *prasitim* as *bhujayoh pravan-dhanam*.

In interpreting a hymn, we must not import anything into it unless the text itself requires it. Take *jivam*, as it is, without adding whether *jāyānām* or *patinām*, or for the matter of that, any body's. As to Sāyaṇa's statement, *rodanenāpi jāyānām jivana mebāśāsata ityarthah*, we remark (1) That the addition of *ityarthah* shows that Sāyaṇa (or whoever the real commentator might have been) was in doubt about the meaning of the stanza, and (2) that it must have been, in Sāyaṇa's time, considered that weeping at separation by death or otherwise was auspicious by ordination; but that there is no evidence that such ordination really existed at the time when Ghosā composed the hymn; and that it is more likely that in Ghosā's time shedding tears at separation was natural and not artificial. Hindus do shed natural tears even now at the time of separation, without any reference to any shastric injunction to that effect. Of course relatives, especially old ladies, not affected by European education, who may be present on the occasion, but who do not feel genuine grief do actually simulate grief with a view to follow out the injunction. We are not here concerned with the conduct of ladies who have been affected by

European civilisation. Next comes the difficult word *prasitiṁ*, what does it really mean? Sāyaṇa has here explained it as *bhujayoh prabandhanam*, but there is nothing in the text to justify this explanation. Sāyaṇa himself has explained the word in his commentary on the Taittiriya Saṁhitā 1. 1. 6. 7. He explains it there as *Karmasantānah*.¹ The word *prasiti* has also been used in R. V., 4. 22. 7, and Sāyaṇa explains the word there as *bandhanam*. The meaning of the word is therefore “a continuous chain”. Therefore, if *adhyāhāra* had been expunged altogether, Sāyaṇa’s commentary would have been meaningless. Let us now consider the translations. Grassmann curiously enough separates this and the remaining portion of the hymn from the text of his translation, relegates the portion to an appendix and describes it as obscure and secondary. His translation is as follows:—

“Sie beweinen den lebenden, gehen hin und her beim Opferfest; die Männer sannen der langen Noth nach, sie, welche hier den Ahnen schöne Gaben gebracht haben, (während) die Weiber ihren Gatten Freude (gewähren) zur Umarmung.”

We shall note only certain principal features of this translation. *Dirghām prasitiṁ* has been translated as ‘der langen Noth.’ I do not find any justification for translating *prasiti* as ‘Noth.’ The idea conveyed by ‘Noth’ is want, pain, grief, danger. It must be shewn that the word *prasiti* has the sense of grief or pain or want. *Vimayante adhvarā* has been translated as ‘gehen hin und her beim Opferfest,’ but where does the translator get ‘hin und her’? The idea of ‘to and fro’ is not contained in the stanza in any form. ‘Beweinen’ as translation of *rudanti* needs a qualification. *Beweinen* might imply some such idea as loud crying, a loud wail; but the Sanskrit root *rud* does not convey this idea. *Rud* means exclusively, shedding tears. If the author had intended to convey the idea of loud crying, she would have used the root *ru*.² About Rudra the following stanza appears in the *Bṛhaddevatā*:—

arodīdantarikṣe yad vidyud vṛṣṭiṁ dadannrṇām
chaturbhirṛṣṭibhistena rudra ityabhisamstutah.

(2. 34.)

This follows from one of the etymologies of Rudra given in the *Nirukta* (10. 5) *yad arodittad rudrasya rudratvam iti hāridravikam*. Yāska also notes that the word may be derived from the root *ru*. Yāska makes a clear distinction between the two roots *rud* and *ru* and, consequently, between the meanings of the word as so derived. If it is made to derive from the root *rud* the idea will be that of shedding tears,—rain, as the *Bṛhaddevatā* makes it clear by saying *Vṛṣṭiṁ dadat*.

¹ *Dirghāmanuprasitiṁ āyuse dhīm*.

² *Tu, kkhu, ru, śabde*.

The idea of loud noise does not appear here. The word *vidyut* has been used, but this has reference to light and not to sound. Yāska says *rodayatervā* and Durgā comments *śatrūnasau rodayati dukkhayati*,—makes enemies shed tears. In deriving the word from *ru*, the reference is to the making of sound. *Ru + kvip*—*rut*; *rut + ra* (in the sense of *matup*)—*rudra* and the word would be explained by *rautiti sato rorūyamāno dravatiti*. The word *arodit* would not by itself justify Prof. Macdonell's translation by 'roared'; but the Professor had to use that word having regard to the fact that in certain manuscripts *rorūyan* stands for *arodit*, and his translation was meant to cover both the ideas generally. Take another famous instance of the use of the word *rudanti*:—

rudanti pāṇḍavāḥ sarve hā hā
keśava ke śava.

Here also *rudanti* by itself does not convey any other idea than that of shedding tears, and the idea of loud crying has been conveyed by the addition of the words *hā hā*. The translation of *rudanti* by *beweinen* does not make this absolutely clear.

The idea conveyed by Grassmann's translation is that of loud crying, and dancing; and there is meditation over the end of all pains and sorrows, and on such an occasion there is an offering of good things to the Pitris and offerings of happy embrace by women to their husbands. It will now be clear that the sense conveyed by the translator could not have been the sense of the author. Grassmann admits that the sense of the original text is obscure and we therefore are not called upon to analyse the translation more minutely.

Ludwig's translation is as follows:—"nach dem lebenden weinen sie, vertauschen ihn beim opfer; auf weiten wurf hin haben die männer gedacht, die dieses schöne den Pitar zugebracht haben, (während) heil den gatten die frau zur umarmung."

Ludwig like Grassmann translates *jivam* by *lebenden*. This however is a mistranslation. The idea conveyed by the word *jiva* has no connection either with life or with death. An individual may be called *jīva* either when existing in the gross body (living) or when existing in a subtle form after death, to whom offerings are made and who becomes united with the Pitris. After having used the word *lebenden*, the translator imports into the text the idea of a widower for whom the *Rtvijah* cry. The idea of crying for the living widower, is imported into the text, because it is assumed that the wife is dead. This conception, however, finds no place in the text itself, and apparently had its origin in Sāyana's commentary. The reading *jīvam* would not help Sāyana, Ludwig or Grassmann in any way; and further, the reading *jīvām rudanti* is admittedly

an ūha only. I must admit that I do not follow the professor in his translation of *vi mayante adhware*; for what is really meant by 'vertauschen ihn beim opfer,' in connection with the text? In order to appreciate this part of the translation we must be informed as to what *Yagña* the translator refers to. The idea of the translator probably is that condolence is offered to the widower for the loss of his wife, but is there any *Yagña* in which such condolence is offered? Assuming even, for the sake of argument that the learned translator is correct, then how have we got to explain the offering of nice gifts to the *Pitris* in connection with such ceremonies?

We next consider Langlois's translation of the stanza which is as follows:—

Cependant les Richis s'agitent dans leur service; ils font entendre des cris de joie, et forment la longue chaîne de leurs cérémonies, heureux de donner de merveilleux enfants aux pères (du sacrifice) et de placer de telles épouses dans les bras de leurs époux.

There is no word in the text for 'cependant.' 'S'agitent dans leur service,' in the translation, is made to stand for *vi-mayante adhware*; but does *mayante* carry the same sense in Sanskrit as 'agitent' does in French? *Mayante* is derived from root *maya* which has the sense of drawing, or moving, but *agiter* could easily be misunderstood.

The next portion of the translation which we shall notice is 'ils font entendre des cris de joie,' which is the same as 'ils poussent des vivat' or 'poussent des cris de joie.' The 'cris de joie' does not, however, appear in the text. *Rudanti* means shedding tears and is not connected with joy. Another point in the translation which requires consideration is 'forment la longue chaîne de leurs cérémonies' which stands for *dirghām prasitimanu didhiyuh*. The original has no word for 'forment'; *didhiyuh* cannot be made to convey the idea of forming. The translation seems to take *adhware* along with *dirghām prasitim*, etc., but it must be noted that *adhware* is singular. Then again, it is difficult to ascertain how the translator paraphrases the 3rd and the 4th *pādas* of the stanza. The idea conveyed by the translator's words 'heureux de donner de merveilleux enfants aux pères (du sacrifice)' cannot be traced in the text, whichever way the text may be paraphrased.

It is interesting to note that the *Atharva Veda* contains this same stanza with certain alterations. The reading of the *Atharva Veda* is:

Jivam rudanti vi nayantyadhvaram dirghāmanu prasitim didhyurnarah vāmam pitrbhyo ya idam samirire mayah patibhyo janaye parisvaje.

Mark the differences. *Mayante*, *v.l.* *nayanti*; *didhiyuh* *v.l.* *didhyuh*, *samerire*, *v.l.* *samirire*, *janayah*, *v.l.* *janaye*. It will be noted that the differences in the words or the grammatical

forms do not alter the meaning of the stanza. We may take it, that the alterations were made with a certain purpose, which is not apparent on the face of the text. Weber translates this text as follows:—

Es jauchzen laut, ordnen die opferweise, und hoffen auf langes geschlecht die männer, die den manen dies hier zu lieb bewirkten, den gatten zur wonne,—des weibes umarmung.

'Es jauchzen laut' follows the idea started by Langlois. We doubt also whether 'ordnen die opferweise' will serve as a translation for *vi mayantyadhvare*. The original *dirghām prasitim anu didhiyuh* does not justify the addition in the translation of the words 'die männer,' whatever the word *prasiti* might be assumed to signify. Now, we shall discuss Lanman's translation of this text, which runs as follows:

They weep for the living one (the widower). They cry aloud at the service. The men thought over the long reach (of his happy life now past). A lovely thing for the fathers, who have come together here,—a joy to husbands—are wives to embrace.

Our objections to this translation will appear from what we have already said.

We shall now refer to Bloomfield's interpretation of this text. According to Bloomfield the words *jivam rudanti* must be rendered by 'they bewail the living one.' He has discussed the meaning of the word on the assumption that it implies loud crying and after assuming this, he proceeds to discuss whether the loud crying is in this stanza an expression of grief or of joy. We have maintained that *rud* does not convey the idea of loud crying. The passages from the Atharva Veda, 14. 2., quoted by Bloomfield do not shew that *rodēna* means loud crying. It simply means shedding tears; and it is well known that shedding tears is considered to be inauspicious. I do not deny that *samanartīṣu* and *rodēna*, being taken together, are likely to produce an impression that probably loud crying and dancing are meant; but this does not follow from the meaning of the word *rodēna*, but by the addition of the word *samanartīṣu*; that is to say the meaning is not deduced from the words of the text, but is imported into it on the assumption that if there is dancing and shedding tears, then there must be loud wailing also. This may be wrong. The text referred to by Bloomfield shews only this, that shedding of tears whether in grief or in joy is inauspicious and in both cases occasions a prayer for deliverance from the sin caused by the shedding of tears.

Bloomfield proceeds to shew on the basis of a text of the *Taittiriya Brāhmaṇa* that the stanza is a wedding stanza. We are not concerned with discovering whether it is a wedding stanza or a funeral stanza by evidence extraneous to the text itself; but we certainly think that it is our duty in the first place to discover the true meaning of the text and then to

examine the propriety of the application of the text to a wedding or to a funeral. The stanza forms part of a *sūkta* which must be taken as a whole by itself and the stanzas in the *sūkta* must be interpreted with reference to each other and with reference to the object of the whole *sūkta*. Bloomfield is perfectly right in saying that the word *jīva* here is a technical term and 'does not here signify merely 'a living person' in contra-distinction to a deceased one (*mṛta*) as it does numberless times in the mantras, but rather a *jīva* in his relations to the *pitar*, in his function as provider of the *Śrāddhas* for the fathers.' He quotes Mahidhara to support him. Mahidhara explains *jīvaḥ* as *prāṇiṇaḥ sapindaḥ*. The word *jīvaḥ* certainly does not mean *sapinda*, although Mahidhara correctly includes *sapindaḥ* in the explanation of the stanzas *ye samānāḥ*, as he explains them with reference to their application in *Śrāddhas*. These stanzas, it must also be remembered were in Mahidhara's time used as *Śrāddha* mantras. He apparently assumes that the *jīva* in his relations to the *pitar*, in his function as provider of the *Śrāddhas* for the fathers is either the bridegroom or the bride. This assumption again is based on two other assumptions namely (1) the existence at the time of composition of this hymn of a wide-spread custom that either the bridegroom or the bride should be bewailed at the time of marriage, (2) the correctness of Haradatta's explanation as quoted by Winternitz. Bloomfield says that this widespread custom is thus proved. When one enquires as to what the custom is, one will find that it is bewailing either the bridegroom according to some, and bewailing the bride according to others. There is, therefore, no fixity in the alleged custom. Therefore the alleged custom is *not* proved. It will be observed further that the allegation that the bride is bewailed, is not consistent with what Baudhāyana says: *sā yadi āśru kuryāt*, etc., that is, if she cries.

Now, does the question arise whether this particular stanza is a wedding stanza or a funeral stanza? I say,—no: the stanza has to be explained with reference to the rest of the hymn, and if we fail in making out a meaning consistent with sense, then we are bound to confess the fact. In discussing the meaning of this stanza, Prof. Bloomfield's idea was to emphasize on the futility of all attempts at understanding Vedic passages, which were constructed within a certain environment, and under the impulse of certain accompanying actions, without searching for that environment and that action. The principle suggested here is surely correct, and ought to be followed by all students of Vaidik mantras, but this by itself is very vague and must be supplemented by detailed rules as to how the environment and the action have to be found. Let us consider for a moment how far he himself has succeeded in applying his rule. He has, at the commencement of his paper, partly discussed certain translations of the stanza. He says that

rudanti implies joyous shouting, although he finds, Baudhāyana saying *sā yadi āsru kuryyāt*. Here is a clear breach of his own tenet. We have shewn also on other grounds that this cannot be the correct meaning. He assumes next that because this stanza has been directed to be used as a mantra, when and if the bride sheds tears at the time of parting, therefore the stanza is a wedding stanza. He certainly knows, as is fully evident from his own Index (the most valuable work of reference for Vedic scholars), that numerous stanzas have been employed in sacrifices without the slightest reference to their original signification and if such is the fact,—then how does the learned Professor ever expect to succeed unless he confines his principle within certain limits? Take for instance the stanza :

Dadhikrāvno akāriṣam jīṣṇoraśvasya vājinaḥ surabhi no mukhā karat pra na āyūṁṣi tārshat.

The meaning of this stanza is easily understood without reference to the environment and the action. It is a praise and a prayer. God Dadhikrāvā's attributes are stated (*stuti*) and boons are asked for. Mark that this mantra is employed in the use of *dadhi* (curds) in connection with a variety of sacrifices without reference to *dadhikrāvā* and without reference to the meaning of the stanza itself. Thus, the environment and the action in respect of the same stanza are widely different. Therefore, the principle laid down by the learned scholar fails. The environment and the action as appearing in the *sūtras* are not the infallible test of the true meaning of a mantra.

Now let us consider the meaning of the stanza. The plain meaning of the words without interpolation appears to be as follows.

The sacrificers shed tears for the *jīva*, bring the *jīva* to the sacrifice; contemplate over the long continuity of being. They gather this dear (*jīva*) to the fathers. Happiness unto the husbands; wives for embrace.

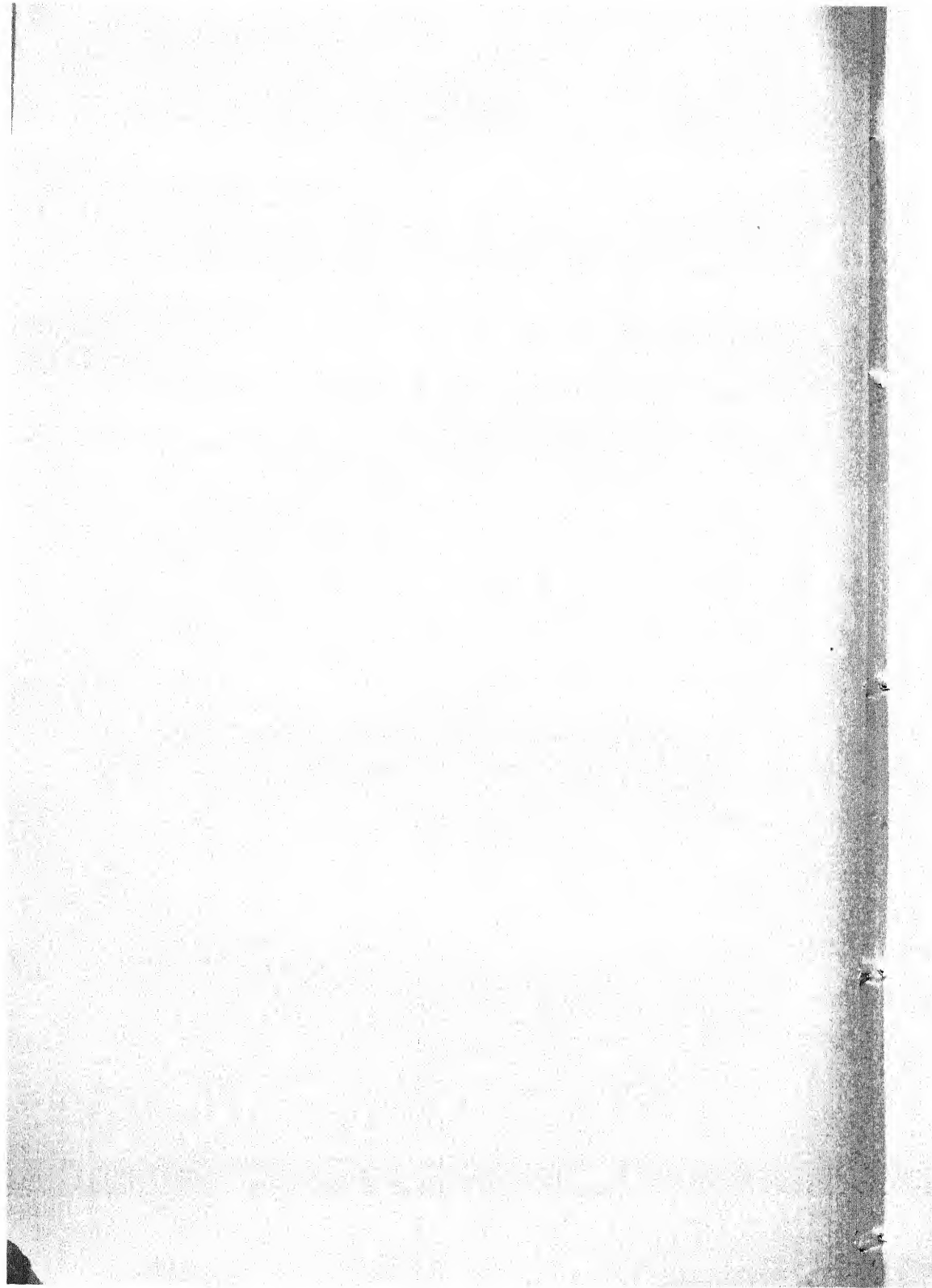
Shedding tears for the *jīva* is quite natural at separation. The text does not mention how the sacrificers are related to the *jīva*. Therefore the seer must have been contemplating separation from *jīva* in general, in connection with whom they were gathered together to perform a *yagña*. The sacrificers bring the *jīva* to the *yagña* and they gather the *jīva* to the *pitrīs*. They contemplate the continuity of life, and the happy and blessed union of male and female, which causes such continuity. All these events happen only in a *Śrāddha* ceremony. They shed tears, only too naturally. They by mantras invoke the spirit of the departed to the *yagña*, they consider the long line of forefathers of the deceased to whom sacrifices and oblations are offered. The forefathers are also invoked. Then the departed spirit is gathered to his forefathers by means of a *śrāddha* sacrifice. The departed is dear

to the forefathers, as he must be one of their descendants who had in his lifetime offered water and food to them.

In the former stanza, Ghosā has asked the Ásvins to secure a bridegroom for the bride and now she asks for the boon of a healthy and productive union. That this was Ghosā's idea in composing this stanza, will be further proved by the next stanza where she desires a young beautiful and worthy husband to whose house the bride can repair.

We have not thought it necessary to discuss Prof. Whitney's translation as our objections to the same will appear from what has been already stated.





On some Maithili Dramas of the Seventeenth and Eighteenth Centuries.

By KUMAR GANGANANDA SINHA, M.A.

Some time ago I brought it to the notice of this Society how the dramas entitled विद्याविलाप, महाभारत, and साधवानलकामक-न्दला, written respectively by काशीनाथ, कृष्णदेव and धनपति in the Maithili language, were discovered in Nepāl. The plays are very important in more ways than one. They give us an insight into the mode in which they were played; they depict the taste of the time and throw a side-light on the civilisation of the period. Moreover, in the absence of any more literature of this class they may be taken as a type of the Maithili plays belonging to that period, namely, 17th and 18th centuries.

At the outset we are struck with the fact that the themes of the plays are taken from the legends that had become very popular at that time. In विद्याविलाप, we meet with the story of Vidyāsundara, which may be briefly stated thus:

In Ujjain, there was a king named Virasimha. He had a daughter called Vidyāvati. She was a very talented girl and had taken a vow of marrying that person who would defeat her in discussion. Many princely suitors came and went away disappointed. Her father became very anxious on her account and decided to try prince Sundara, who was reported to be a very learned man. He sent his court-poet to the royal court of King Guṇasindhu of Kānchi, the father of prince Sundara, for the purpose of inviting the prince to his court. Prince Sundara had also, on the other hand, heard of the beauty and accomplishments of Vidyāvati and secretly wished to woo her. He came to Ujjain without any body's knowledge and pitched up his residence at the house of the garland girl of the king. On becoming intimate with her the prince told her his mind and sought her help in the affair. She contrived to bring both Sundara and Vidyāvati together and from the first sight both of them became enamoured of each other. But they did not find their course of love smooth. The king and the queen of Ujjain came to know of the clandestine visits, and the lovers were caught. Sundara was brought before the king and was sentenced to the punishment of a thief. But subsequently the court-poet, who had gone to Kānchi, returned and told the king that the captive was no other than prince Sundara, the son of King Guṇasindhu. Upon this the king immediately released him from captivity and united him with his daughter in marriage.

This story has its origin probably in the Chaurapanchāsikā. Sundara, the hero of the story, is, according to some, the Chaura Kavi himself, to whom the authorship of the Chaurapanchāsikā is ascribed. There are others, however, who say that the book was the work of Vararuchi, a Maithil scholar. Śrīyuta Bhārat Chandra Roy wove the story into a fine poem and it became a favourite study of both the old and the young in Bengal. Maharaja Yatindramohan Tagore utilised the story to form the plot of his play Vidyāsundara and the celebrated Hindi poet Bhāratendu Harischandra borrowed materials from it for his work bearing the same title.

माधवानलकामकण्डला, again, is nothing but the dramatic representation of the popular story bearing the same name. It is shortly this :

King Govindachandra of Pushpāvati City had in his service a Brahmin boy named Mādhavānala. He was exceedingly handsome, well-versed in music and arts and a favourite of all. This excited the jealousy of the courtiers, who influenced the king to banish him from his kingdom. But the king did so, by showing him all marks of honour. Mādhavānala went to the city of Kāmāvati. When he reached the gate of the palace, he heard the music that flowed from the minstrels accompanying the courtesan Kāmakandalā in her dance. On listening to it Mādhavānala remarked that the court was full of ignorant people as it allowed the man playing at mridaṅga to go on, although he was not keeping time for want of his right-hand thumb. The door-keeper reported the fact to the king. Curiosity led him to know what it was, and he found that it was a truth. The king then immediately called him to the court and treated him with every mark of honour. The dance went on. It kept the spectators enchanted. At this inopportune moment a wasp bit the breast of Kāmakandalā. For fear lest the dance be spoilt, she managed to scare it away with the air of her breath. No one noticed it except Mādhavānala. He became exceedingly pleased and did not hesitate a single moment to present her in open court with all the gifts that had been offered to him by the king. But the king took it as an insult and the Brahmin was ordered to leave his kingdom at once. He, however, got a very high place in the estimation of Kāmakandalā. She kept him in her house for some time, before he left the city and both of them became exceedingly endeared to each other. When they separated, they did so with a heavy heart and many promises of mutual love and fidelity. At first Mādhavānala had no fixed destination. On his way, however, he met a man who was going to the court of Kāmāvati with a problem (समस्या) from King Vikramāditya of Ujjain. Mādhavānala solved it and proceeded to Ujjain. On reaching there he wrote a love-letter to Kāmakandalā and received a suitable reply. Mādha-

vānala became greatly distracted in mind when he read in it the sorrows of a truly afflicted heart. He went over to the temple of Mahākālā and passed his night there. As a means to lighten his heart he wrote a couple of verses on a piece of paper. They clearly expressed the emotions of his heart. On the next day King Vikramāditya, when he came to worship the god, saw them, and became interested in finding out their author. The quest was unsuccessful. He met with the same incident on the subsequent day. But on this occasion he succeeded with the help of his courtesans in finding out Mādhavānala, the author of those stray verses. To test his love, King Vikramāditya made him believe that Kāmakandalā was dead. Mādhavānala died of grief. The king then secretly went to Kāmakandalā and broke to her the news of Mādhavānala's death. She also died at this terrible news. The king then realised the situation and asked his vampire (वेताल) to bring the lovers to life and effect their union. And it was done.

Like that of *विद्याविलाप* this story too had a very wide circulation. We know of its antiquated manuscripts being available in Nepāl, Mithilā and Bengal and it has also been treated in a dramatic form by Sanskrit and Hindi authors.

The story of the Mahābhārata is too well-known to be recounted. The proofs of its well-established popularity throughout the length and breadth of India can not as well be disputed. And the Mahābhārata of Krishnadeva is only the representation in a dramatic form of some of the famous episodes of the *Śatasāhasrī-Samhitā*.

Thus it can be said without fear of contradiction that the stories of *विद्याविलाप*, *महाभारत* and *माधवानलकामकन्दला* were very well-known in Nepāl, Bihar and Bengal. As a matter of fact the plays under consideration are written in such a way as to be quite unintelligible to those who were not acquainted with the stories.

Another fact that engages the attention of the reader is that all the three plays open with an invocation to Śiva in the form of the "master of plays." Other deities that find a place in these works are goddess Chandikā and gods Bhairava and Viṣṇu. This can be explained by the fact that the royal patrons of the authors of these plays were worshippers of these gods and goddesses. We know that the King Bhūpatindra Malla put a golden roof on the temple of Bhairava in N.S. 838 (i.e., two years before the composition of *विद्याविलाप*). In N.S. 827 he placed Bhairava and Ugrachandā in the Naya-khachetanagol Kwatha. We also know that he was a devotee of Śiva, of the Goddess of Tantrasāstra, Hanūmān and Narasimha. All these deities were worshipped by Ranajit Malla also. What else could Pandits of the court of these kings do than to make their work suit the particular tempera-

ment and inclination of their patrons? Besides this, predominance of Śiva over other gods can be attributed to the fact that Śaivism was, as it is now, the State religion of Nepal. We know likewise that in the Hindu mythology Śiva is the reputed founder of music.

Then we see that the reigning king is praised at every step. One cannot help thinking at this, that the plays were designed to be performed in the court, if not in the presence, of the king.

There seems to have been no painted scene. It was supplied probably from the imagination of the audience. The context denotes the place of action.

The plays are divided into Acts. Very probably, one Act a day was performed. This appears from the fact that at the commencement of every Act we find mentioned "अथ" such and such "दिने"; and at its end is written "इति" such and such "अङ्क".

As is customary with the Indian plays the prelude is formed by a dialogue between the stage-manager and his wife (सूत्रधार and नटी). From them the audience learns about the play to be performed. They extol the reigning king and the country, and shower flowers on the audience with befitting verses.

The actors and actresses adequately dressed appear on the stage one by one. Sometimes however, their number on the stage is more than one. At places again, there are scenes of battles, merry-makings in the gardens and water-plays, etc., which must have required the presence of a number of players. As to the stage directions, we generally find mentioned "Enter" and "Exit" and also that such and such person "speaks." Thus these things go a great way to show that the ideas of modern drama were developing at that time in Nepal and its neighbouring countries.

There is no prose piece in the dramas. They contain only songs, which indicate everything that the audience ought to know. Dialogue between the dramatic personages is carried on in songs.

The performance was accompanied by a well-organised orchestra and these plays show unmistakable signs of the fact that a very high class music was appreciated in Nepal. The melody, time and tune (राग, नाद and गति) of each song are clearly noted. It is interesting to note that the following *rāgas*, *rāginīs*, and *tālas* (i.e., melodies and time) are mentioned in the books.

तोड़ी, नट, मालकोस, मालव, भैरव, केदारा, कामोद, विहाग, परज, दीपक, कल्याण, भूपाली, विभास, श्रीगौरी, पड्डिया, कान्हरा, असावरी, राजवन्ती, काफ़ी, घनाश्री, इमनकल्याण, वसन्त, श्रीराग,

माखधनाश्री, सारङ्ग, धुरियामल्लार, ललित—भैरवी, मरहट्टी, विलावल,
गौड़मालव, कौशिक, नटमल्लार, मालश्री, वराडी, गुर्जरी, जयतश्री,
सोरठ, कोराब (?) कोटान (?) जति, दंडक, एकताल, दूताल, तेताल,
चौताल ।

Save and except दीपक, मरहट्टी and कोराब and कोटान, which cannot be identified, all the *rāgas* and *tālas* are prevalent even up to the present day. Moreover, to guide the tune of each song there are indications probably of songs that were very popular at that period. Besides this, we come across such songs as prove the existence of well-equipped experts in music. They cannot, as a matter of fact, find a place among those who have but superficial knowledge of music. The sentiments of the dramatic personages were perhaps expressed by the peculiar melody of the song, which they sang. Some times directions are given to play the orchestra without any vocal music.

Another fact that must attract the attention of the reader of these Maithili plays is the foreign element found in them. For example, at one place in *विद्याविलाप* we meet with the verse

“मेरे शुभ घरिआ है, मिल गय तुम गुणमन्त
जयसे पपिहा हरष (ख) कियो सो, पानी पाय तुरन्त”

There cannot be any doubt as to its language being Hindi. Similarly, in

नट रसिया मय हर भजिये
गौरौके पति नाच रंगे भवके तारन जानि etc., etc.,

of *साधवानलकामकन्दला* we find that “भजिये” and “के” have Hindi inflexions. Then there are prayers (सौत्र) in Sanskrit. Sprinklings of the Newari language are also very common in these plays. “मेपू” meaning ‘another’ is the most striking of them. At the end of *विद्याविलाप* we have a sentence which runs thus :

“संवत् ८४० भाद्र शुदि १३ यो नाटक संपूर्ण बाहा जूली”

(The drama ends here on the thirteenth day in the bright fortnight of the month of Bhādra in Samvat 840.) Most probably the scribe was a Newar.

On the whole, on reading these plays we get a very favourable impression of the court of Nepal, with all its grandeur and ostentation, as a place for the encouragement of literature, music and art and resorted to by the people of the different parts of India, each giving its quota to the promotion and refinement of taste in the country. And above all, the

language of these popular plays denotes the remarkable fact that Maithili had then become the literary language of Nepal. This, as we know from other sources, is only an instance of the vast influence that Mithilā exercised over the Nepal culture at that time. But this is not the place to enter into the subject in any detail; and we may conclude that the ancient glory of Mithilā had not yet then begun to wane and these plays represent her as zealously pursuing her campaign for the cultural conquest of India.

ARTICLE No. 7.

A Note on Arddhanārīśvara.

By A. S. RAMANATHA AYYAR.

Page 223 of the *Journal of the Asiatic Society of Bengal*, 1923, No. 5), Reverend H. Hosten, S.J., has the note :—

Arddhanārīśvara in Southern India—The subject of bodies of men at the courts of Indian princes, chiefly in the one that turned up so repeatedly in the course of my hat I considered it useless to note references. On February 16, 1923, the last day I spent at St. College, Trichinopoly, I noted in one of the books of *Arddhanārīśvara*, edited by Capt. M. W. Carr, Madras 1889, a picture of a three-armed woman who had only the left one. My notes show that two of her arms arms, one of which was raised for blessing, while the a battle-axe. What the third arm was doing, I did

Above her head was an inscription, perhaps her I did not the Amazons burn their right breast, to be rous in handling the bow? This sculptured woman v, however.

It struck me most in the pictures of that book was y Egyptian look of many of the figures, a point not commented on, I believe, by the writers of those and those sculptures appeared to be fully two ears old!"

It is note, it may be said that it is written in of Pallava archæology and Hindu iconography.

It is a well-known fact that the rock-cut temples of puram, (*vulgo* Mahābalipuram) were excavated in days of Pallava supremacy in about A.D. 650, when simhavarman I, who was himself responsible for the beautiful excavations of that place, thought it ary to perpetuate his title of 'Mahāmalla' in the Mahāmallapuram, of the little sea-port, which been in those early days a town of some maritime . It was this king who had the superb Dharmarājad out of the rock as an edifice of three storeys and commemoration thereof, engraved one or the other erous *birudas* on the lintels of the niches, cut into the shrine and designed to house some rock-cut god of the Hindu pantheon. One such title of this

Pallava king was 'Bhuvanabhājanah' (भुवनभाजनः), 'the possessor of the world,' and it is this word that we find incised in the Pallava-Grantha script on the niche referred to by the Father.

The image in the niche which has very curiously been mistaken for a South-Indian Amazon is in reality an orthodox representation of Arddhanārīśvara, or the half-man-half-woman aspect of god Śiva, which he is said to have combined in his own body, in illustration of the fact that the whole world is composed of such pairs of opposites, the male and female principles of life—the *Purusha* and the *Prakṛiti*. A good photograph of this image is found on Plate XCV of the *Elements of Hindu Iconography*, Vol. II, Part 1.

The right side of the image is Śiva's half, and, being a male, he is naturally not shown with a full breast. Of his two hands one is in the *abhaya* pose of benediction, and the other wields a *paraśu* or battle-axe, one of his attributes. A serpent dangling at his waist, perhaps as his waist-cord, justifies his title of *paṇṇagabhūṣana* or 'serpent-adorned.'

The left side or Pārvati's half, which is incorrectly represented as having only one hand in the outline sketch illustrating Carr's book, has in the original sculpture two hands, one of which is hanging freely at her side, while the other carries a *nīlotpala*-flower. Although three-armed images of Arddhanārīśvara are not unknown to text-books on sculpture, the Mahābalipuram image has its full complement of four arms with characteristic attributes. The left ear is adorned with a gold cylinder (*ṭoḍu* or *tātanka*), as distinguished from the *kundala* that has been worn in Śiva's ear-lobe.

It can thus be seen that there is no connection at all between an Amazon and the four-armed deity at Mahābalipuram, and that the sculptors who had chiselled these images in the 7th century A.D., were completely innocent of the charge of 'Egyptian influence,' having perhaps never even heard of 'the Land of the Nile.'

The Age of the Padmā.

By BISVESVAR BHATTACHARYYA.

It is now a well established fact that the mighty Gange originally flowed to the sea through the channel now indicated by the Bhāgīrathi, the Hooghly and the Tolly's *nulla*. Some time later on, the main body of its waters was attracted eastwards and the Bhāgīrathi began to shrink in consequence. The Padmā (as the lower course of the Ganges is now called) thus became a mighty river and largely contributed to the formation of the delta eastwards.

It has been generally assumed that a diversion in the course of some northern rivers brought about this change and that it took place about the 16th century A.D. Mr. R. G. Reaks would place the beginning of this process in the 15th century.¹

This opinion appears to be erroneous as far as the time is concerned. The Padmā, as a river, is of remote antiquity and the diversion of the waters of the Ganges from the Bhāgīrathi to this river must have taken place in the 14th century, if not in the 13th. The old writings of Bengal support this view.

Mention is made of the Padmā in Devī Bhāgavat, Brahma Vaivarta Purāṇa, Jaina Harivamśa and many other old books. Devī Bhāgavat and Brahma Vaivarta Purāṇa, at least in their present recensions, are taken to be later productions than Jaina Harivamśa which is believed to have been written in the 8th Century A.D. It is probable that the Padmā was not at that time a river of considerable magnitude though notice was taken of it owing to its connection with the sacred stream.

A copper plate inscription of Śrīchandra Deva, found in South Faridpur, records the grant of some land in Villag Leliā in Kumārtālakā Maṇḍal in the Viśaya of सतटपद्मावा (टौ). This inscription has been considered to be of the 10th—11th century A.D. The name of the Viśaya or the district evidently refers to the Padmā and its bank and the presumption is that the river then flowed through what is now the

¹ Bengal Census Report, 1901, (Gait).

Major Hirst's Nadia Rivers (1915).

R. G. Reaks in the Report on the Hughly rivers and its head quarters (1919), etc.

¹ Dacca Review, 1912.

Faridpur district, though it is not unlikely that it did not even then carry a considerable volume of the Gangetic waters. There is, in fact, in that district, the bed of an old channel known as *marā Padmā* (dead Padmā) the origin of which is lost in obscurity.

We next come to the Pavanadūta of poet Dhoyī who flourished in the Court of King Lakṣmaṇa Sena in the 12th century A.D. In it there is a reference to the Bhāgirathi and its spill stream the Yamunā at Trivenī. The latter is depicted as a mighty river with whirlpools.¹ It follows that the Bhāgirathi, of which it was a branch, was then mightier still and had not lost its importance as a river.

Next, we come to the Rāmāyaṇa of Kṛtīvāsa written, it is believed, early in the 15th century A.D. Here, one Padma-muni is mentioned as having taken away the sacred goddess through the Padmā and Bhagīratha is credited with the performance of having brought her back through the Bhāgirathi. This shows that the Padmā had, sometime before this time, already attained considerable dimensions and carried away the main body of the waters of the Ganges, for, otherwise, the question of her being the unauthorised vehicle of the sacred waters would not have arisen. There is, in fact, reason to believe that the poet referred to a legend that had already taken firm root in the country in connection with the diversion of the main stream. There is, again, another significant passage in this book meaning—

“The Ganges once flowed through the Bhairava,” which seems to refer to a historical fact, however short-lived this diversion may have been. Again, in the poet’s account of himself, it is said that he went for study across the Baḍa Gangā, i.e., the big Ganges. This cannot refer to the Bhāgirathi and shows that another stream had acquired the reputation of being the mighty carrier of its waters.

A reference to the Vaiṣṇava literature of Bengal shows that the position of the Bhāgirathi as a big river was definitely gone in the last part of the 15th century. Numerous *ghats* or bathing places are mentioned, while the boy Nimāi and his boy companions are represented as frequently swimming across the sacred channel. The river at Nadiyā had obviously become tame and decadent for sometime and was apparently, at the time mentioned, not much more powerful than it is to-day. As might be expected, the Padmā is an important river in later records.

The foregoing summary indicates clearly enough that although the earthquake of 1505 A.D. referred to by geologists may have rendered additional strength to the Padmā,

¹ संसर्पन्ती प्रकृतिकुटिलां दर्शितावतौचक्रां, etc.

its greatness did not originate then but that even early in the 15th century it had already become a mighty river at the expense of the Bhāgīrathī with a legend about diversion of the course. Considering the nature of the legend which professes to refer to the time when the Ganges first came to Bengal and the normal course of time necessary for its growth and popular acceptance, it would perhaps be fair to place the diversion early in the 14th Century, if not in the 13th.

Our Romanized Hindustani-English Dictionaries :
Their partial Inefficiency and its Remedies.

By THE REV. A. GRIGNARD, S.J.

How does it come about that our most scholarly and exhaustive Hindustani-English Dictionaries in the Roman character, while held in high and deserved esteem by linguists and book-students generally, find but scanty favour with, and are to a sad extent neglected by, the Hindustani-learning public? Whence this strange phenomenon that standard-works like Forbes' and Craven's, of acknowledged helpfulness for the interpretation of almost any Hindustani texts in black and white, turn so unserviceable regarding most of these Hindustani terms and idioms which one picks up casually in the street or in the kitchen, I mean *by the ear only*?

Many Europeans with a solid or refined education, yet laying no claim to Oriental scholarship, Government officials, merchants, planters or missionaries—in daily contact all of them with the natives of India, all of them interested from a variety of reasons in acquiring a substantial and effective command of Hindustani—frequently find themselves in the necessity of quickly ascertaining the gist of terms and phrases just used in their hearing and still ringing in their ears. How is it that, for all such, and for them alone—seemingly as a penalty for their not having been brought up at the feet of Gamaliel,—the outcome of a crisp fumbling through their Craven or Forbes turns out, in fifty cases out of a hundred, to be *nil*?

The fact itself has long stood on record: it could not well be disputed. That its ultimate causes, perchance remediable, are worth tracing up, few men would feel disposed to deny. Nay, not a day passes in which many such guesses are not actually made (with perhaps a tinge of impatience) by the disappointed persons themselves. One makes up his mind that his star blessed him with an incurably bad ear. Another argues that spoken Hindustani must bring to the top a vocabulary which classical Hindustani does not acknowledge. A third offers it as his decided experience that uneducated pronunciation, throwing "as it does" words out of shape, necessarily places them beyond the pale of dictionary research. Very many go the length of declaring that Craven and Forbes have left half of the language-wealth out of record. If of a peeping-behind-the-curtain turn of mind, balked Dictionary searchers will probably throw the entire blame of their failures

on the bushiness of the Nāgari alphabet itself, or else on its defective romanization.

It has long struck me that such surmises, one and all, hit very far indeed from the mark, or at best are only grazing the crust of the whole affair. I am convinced that, grounded as some of those allegations may be or indisputably are, none of them singly, nor the aggregate of them, really accounts for a tenth of the strange mixture of efficiency and impotence noticeable by turns in the books under criticism.

With a few select clients, all the kind *empressment* and brisk erudition of a Cook's interpreter; towards applicants of a rougher sort, a stately look, a dignified reticence: is this the character of an impartially minded guileless Dictionary? My contention is that the actual defect lies solely with the lexicological arrangement of the Hindustani-English Dictionaries themselves. The sequence of their word-entries is no doubt alphabetical; unfortunately it is so with a vengeance. It is so, but without the tempering which a certain logic of a finer kind, a more observing and wide awake scholarship would have made advisable. Words Oriental, as opposed to Western words, have innumerable little peculiarities and idiosyncrasies which postulated an ordering standard of a much more complex character than is afforded by the plain natural sequence of the Roman symbols.

Let me use a simile. Even for a large public library, a symmetrical arrangement by heights of volumes remains as commendable as it looks tidy; yet, if the consideration of inches were not, here and there, tempered by a regard for matters treated, languages used, etc., the library would lose its best qualities as an instrument of work. No incomplex principle of assortment can introduce handy order into a complex mass of heterogeneous objects. Craven and Forbes, and pioneers of Oriental lexicography generally, embarked upon their long word-ordering task, never doubting that 39 Nāgari or Persian consonants, if only reduced to the Roman alphabet by classification and sub-classification, must work out for a dictionary a *lucidus ordo* as convenient as does an alphabet of 19 consonants for any Greek, Latin, English or French Dictionary.

Now this was a very wrong assumption, a confidence much too sanguine. The reason why, in the latter-named Dictionaries, the simple order of the alphabet works out a word-sequence so smooth and serviceable is precisely because Western languages (and their alphabet likewise) are made up of a few elementary sounds, all clear-cut like crystal, consequently easily distinguishable from one another; of sounds, once more, *ready-analyzed*, not merely classifiable on analytical lines.

But Oriental languages and their alphabets are, for better or for worse, possessed of characters just the reverse of all this.

In them, pairs of letters abound that are of similar sounds (isomorphous consonants) or of sounds quite identical (homophonous consonants). Some of their nasal sounds moreover are not tied down to one fixed syllable: theirs is a sauntering disposition, which causes them to be found now at one end of the word to which they belong, now at the other, now in the middle.

Is it not clear that, for dictionaries of such languages, a word-sequence however definite, if adapted and artificial, if not produced *ex visceribus rei*, runs every chance of issuing into practical confusion? For Oriental lexicographic work, a special word-ordering standard ought to have been devised that kept together all letters liable in any degree to be mistaken for one another.

Word-spelling is not word-sequence, and the influence of the former upon the latter admits of control. While correct and etymological spelling should, of course, be retained for every one of the word-entries, similarly-sounded letters could and should have been, *just for the purposes of word-sequence*, conventionally treated as identical.

Before going into details, it may be useful to present beforehand, focussed into a short technical statement, the various hints, points of view and general purport of this paper. Misapprehensions may thereby be warded off.

The present article is a plea for the introduction, in romanized Hindustani-English (and generally Oriental-Western) dictionaries, of a word-sequence more largely based on the *sounds of letters*. Every intention of recommending phonetism in word-spelling is distinctly repudiated. Nay, this article would never have been written, were it not as clear as day that a phonetic word-sequence implies in no way a phonetic spelling as its justification.

Here and there in the course of the following pages, expressions of preference and criticisms will be met with, regarding the aptness of certain particular symbols to figure Oriental letters in the Roman character. All such expressions of opinion are but remotely and accidentally connected with the main point, i.e., with the new scheme of word-sequence. This scheme should be judged, and fall or stand, on its own merits alone.

In fact, the new word-arrangement here advocated is not bound up with any particular Romanizing system. It admits of them all, existing or still to come. It commits itself with none, to the exclusion of the others.

The full truth is this. The more scholarly and perfect a particular Romanizing system is supposed to be, the more in need of a modified word-arrangement (such as I recommend) are sure to be dictionaries Romanized in that system. The reason of this apparent paradox is clear. The complexities

which cause Hindustani dictionaries to be so little adapted to research lie in the language itself; that is to say in its composite and homophonous alphabet. Hence, the more closely a Romanizing system will hug that Nāgarī-Persian alphabet, the more replenished that system will become with homophonous and redundant signs, and the less favourable (so far) to lexicographical limpidity.

SECTION I.

The Romanized Aspirates and Word-sequence.

The cumbrous two-letter symbols which, in the Roman type, stand for the Hindi, Persian or Arabic aspirates have, in my opinion, provided one of the worst pitfalls into which Indian lexicography has allowed itself to be trapped.

Let us first of all take stock of the incriminated symbols.

Twelve do duty for the Hindi aspirates; they are in Western sequence :

bh chh¹ dh dh gh jh kh ph rh rh th th

Three more compound signs stand for Persian or Arabic aspirates. These are *gh*, *kh* in Forbes, *G* or *g*, *kh* and *ch* in Craven.

To the above list should be joined the sign *sh*, by which Forbes and Craven figure श and ष.

1. *The h-ignoring principle*—In the plan of word-arrangement which I am advocating with regard to the fifteen or sixteen compound signs just reviewed, their binary character may, regrettable as it is, be preserved. For financial and other reasons, alterations in the received system of symbols might find scanty favour with printers.

In dictionaries, however, the use of those time-honoured symbols would henceforth be confined to spelling purposes exclusively, to the figuration (if one likes better) of every word considered absolutely, in its own exclusive self. Word-ordering would no longer deem itself bound to the chaotic consequences which the ill-devised symbols have hitherto, apparently as a matter of course, been allowed to work upon clearness and efficiency of arrangement.

The only real law which governs dictionary-entries is

¹ The Hindi consonant च should, for obvious reasons, have been figured in Roman by a simple c. Since that Nāgarī letter was at no time mistaken for an aspirate, there never existed a shadow of excuse for figuring it by the English symbol *ch*. The latter symbol moreover necessitates the representation of च by *chchh*, a consonantal cluster intolerably heavy: thus in *achchhá*. But, whether so elegant a simplification is one day carried out or not, my present plan of a modified word-sequence in dictionaries will remain unaffected by either.

that they must follow one another in a definite order. Now definite orders are of many kinds. The particular one which has hitherto prevailed in Hindustani-English Dictionaries, being derived from the customary sequence of letters in the Latin alphabet, is a mere thing of tradition and conventionalism. Such a conventional order, if it proves confusing or unserviceable, should clearly yield to one better calculated for efficiency, the *supreme law*, after all, of dictionaries.

The proposed reform may be thus formulated: all Romanized words, in whose composition signs occur of the *bh gh ph* type, should, for their rank in the dictionary, depend exclusively on the *first* element of such signs (*i.e.*, on *b g p*), and in no manner, however secondary, on the conjoined *h*-element. More simply perhaps: the application of the Roman order of letters to Hindustani word-sequence should be carried out under the proviso that the *h*, which terminates all the Roman symbols of the aspirates, possesses no sub-classifying power. In the actual distribution of respective ranks to all word-entries generally, no more notice should be taken of the *h*-element in aspirates than if it were non-existent.

The few short specimens here subjoined will show what sort of word-sequence would be ushered in by the new ordering-standard. Any of these tableaux, the reader should observe, is made up of two intermixed segments of Craven's Dictionary, the words of each separate segment being shown in Craven's *ipsissimo ordine*.

(1)

Balá A. misfortune.
Bhalí S. good.
Bálá S. a girl, etc.
Bálá P. above.
Bhálá S. a spear.

(2)

Baláhi H. a worker in hides.
Bhalíi H. goodness.
Bálái H. a horse for show.

(3)

Chal H. be off!
Chhal S. fraud.
Chál H. movement.
Chhál H. wave.
Chálá S. motion.
Chhálá H. skin.

The *h*-ignoring principle should of course work no less in respect of medial and final aspirates than in regard to initials. For instance *ádhi*, half, would come in Craven immediately before *ádáb*. Thus again, in chapter B, a recast edition of Craven or Forbes would exhibit the following word-sequence:

(4)

Bakrá S. a he-goat.
Bakhrá P. share, portion.
Bakrí S. a she-goat.
Bakhrí P. a cottage.

Bakhri P. a partner.
Bakhriyá H. a householder.
Bakhsh P. giving.
Baksá H. astringent.

2. *Practical advantages of the new word-sequence.*—I intend showing in a subsequent paragraph that a Hindustani-English Dictionary whose word-entries were arranged on the lines just illustrated would alone be in complete accordance with scientific progress in Indian philology. I should like, however, first to call attention to the practical advantages of the scheme proposed.

None of the business men with little time to spare for languages to whom I have made an earlier reference, no member especially of the large confraternity of people afflicted with a bad ear, would henceforth hunt in vain for and finally miss, in his Forbes or Craven, a Hindustani term the exact spelling of which he were only able to guess at. Any words that had been spoken in his hearing, he could trace up with ease: incidentally and into the bargain, he would be apprised of their correct spelling.

Another benefit of such a dictionary will be best appreciated by scholars. It is a well-known fact that the aboriginal languages current in India contain, under various kinds and grades of deformation, an enormous proportion of loan-words from Hindi. A matter for research more interesting, and, from a philological or historical view-point, a more instructive study could hardly be imagined than would prove an exhaustive sifting-out of such loan-words, and their tracing up to, and comparison with, their Hindi prototypes. With the word-sequence however, of the existing Dictionaries, any thoroughness in this kind of work is, even for scholars, out of the question.

The fact is that one of the deformations which aborigines (among them, the Tamils and the Mundas) are most fond of inflicting upon their borrowings from Hindi is precisely to knock out of their consonants one or two of the aspirations these may happen to contain. Now, let us suppose that some scholar is collating an alphabetical list of Mundari words with Hindi words, and that, in the Mundari term actually under his critical examination, there enter *three simple consonants*. Of these any one, or a couple of them, or even the three of them may be (for aught he knows) Hindi aspirates in disguise: hence, for thorough work, our etymologist is bound to suspect that each of those simple consonants may have *become* so, viz. through a process of 'de-aspiration.' Yet, he will not be able to make up his mind about the point without running his eye through fewer than *eight* different columns or pages of Craven

or Forbes.¹ With the reform here advocated regarding the collocation of Hindi words containing aspirates, the Hindustani Dictionary would possess a sequence identical with that of the "de-aspirating" aboriginal language, whichever it be. Comparative etymological research would become ten times easier and more rapid, while gaining ten times in exhaustiveness.

3. *The proposal judged from the scholarly point of view.*— Since the pioneer years when the Nāgarī alphabet was given the Roman garb it still wears to-day, considerable advance in Hindi phonetics has been achieved. A closer observation of the genuine value which ख, घ, ङ, झ, etc., possess in native utterance, and, in addition, the emphatic averment of English-educated pandits have long brought to light a disappointing fact: the Hindi "aspirates" are pronounced without an audible breathing, without an *h*-sound being added, without any aspiration. All such written symbols therefore as *kh gh chh jh* etc., besides being cumbrous and confusing, are groundless and delusive. Nay, if their *h*-figuration proves so confusing as to word arrangement, this, in very deed, is so *because* that figuration rests on no tangible, observable fact in the pronunciation of Hindu-born speakers.

The proper symbols for the Hindi "aspirates" ought to have been the plain letters *k, g, ch,*² *j*, printed in the *italic* type. For the actual fact is that the correct utterances of (say) क and ख differ only in this, that no vocal stress is put on the former, whereas the latter is but an emphasized क, sharply exploded. "A most important peculiarity" of the aspirated letters, according to Pincott, is that they "do not differ in *kind* from the non-aspirates, but only in *intensity*. In pronouncing them (he explains), the letter *h* which is connected with each of them in the Roman character must be understood simply as a symbol indicating intensity in sounding the [prefixed] letters."³

Our appreciations of other people are influenced by the coloured glasses we have on. At the bottom of that "de-aspirating" oddity which many aborigines exhibit in the matter of their Hindi-borrowed words, what is there of sober reality? Nothing but an antiquated assumption of ours that Hindi does contain material for de-aspiration. Tamils and Mundas put no *h*'s in their loan-words *just because* they found none in the original articles as bequeathed to them by living pronunciation. This is the whole truth of the matter. And

¹ A graphical illustration will make this clear. *Paras* being supposed to be some aboriginal term, the etymologist cannot declare that *paras* is no borrowing from Hindi until he has looked for every conceivably Hindi original of it. These are: (1) *paras*; (2) *pharas*, *parhas*, *parash*; (3) *pharhas*, *pharash*, *parhash*; (4) *pharhash*.

² Or rather *c*, as already noted in a special footnote.

³ Pincott, *Hindi Manual*, 7th edition, London. See p. 5.

when nowadays people "with a bad ear" quarrel with their Forbes or Craven for missing *bhaṭṭhī* at the spot where they had looked for it (viz. just after *baṭṭi*). Is it not they, after all, that are right? The *darwān* or the *āyā*, from whose mouth the untraceable *bhaṭṭhī* was picked up, had indeed sounded its consonants infinitely closer to an authentic व or ट than to our puffing Western *k*-caricatures of ऋ and ॠ.

Once more, I readily acknowledge that, as for altering on grounds ever so rational a romanization system grown into our habits, and in which printing firms have invested largely, it may be too late in the day. But this does not decide the question raised in this paper. One may still ask, in connection with dictionaries and in the name of *applied* philology: Why should such practical books continue to attribute to a spelling, which no inherent reasons render respectable, a side-influence on arrangement? a perturbing influence to which that spelling has no title, scientific or practical? Why not give every recorded word the dictionary-rank that would from the first have been its own, had from the first a proper figuration of the Hindi "aspirates" been in existence?

Considerations of scholarship furnish yet another plea for the treatment of aspirates as recommended in this paper.

Only such a reform, I maintain, could render Forbes and Craven thoroughly consistent with themselves. For those very principles, which are here being urged with regard to the so-called aspirates, already govern word-arrangement in the said dictionaries with regard to some other letters of ambiguous utterance. Word-sequence in Forbes and Craven is indeed based upon an understanding that the eight Roman symbols *d, ḍ, dh, ḍh, t, ṭ, th, ṭh* count, so far as arrangement goes, for no more than *four* letters, and dispose among themselves of four word-displacing powers only.¹ Thus in Craven *tāl*, sackcloth, comes immediately after *tāl*, heated. If this method is scholarly enough with reference to the cerebral consonants, its extension to the treatment of aspirates cannot be scientifically unsound.

For the rest, an apprehension that the new arrangement might inconvenience *ex-professo* students would evidently be groundless. The arrangement would remain one devised on lines strictly definite, which is all that is required. Besides, where is the European student of Hindi literature who has not, at one time of his life, and for his very linguistical improvement, to turn a humble prentice by the ear, and consequently a dictionary consulter of the more humble kind?

So far I have confined my observations to the twelve

¹ ऋ and ॠ are moreover identified in a common spelling (sh). This is much more audacious than anything advocated in this paper.

aspirates of the Hindi alphabet. But, in a *Hindustani-English Dictionary*, the *h*-ignoring principle is also applicable, and should be applied, to *gh*, *kh* and *zh*, Roman symbols for three Persian or Arabic aspirates. For these letters are, or always may be, (in loan-words) uttered like *g*, *k* and *j* respectively. Foreign as the words themselves continue, their pronunciation has become naturalized.

As to the English symbol *sh*, which in Forbes and Craven does duty for *श* and *ष*, its twin differentiations from a plain *s*-sound are, in native utterance, so subtle and evasive that, for the purposes of word-sequence, the three sounds should be identified, and possess in common one word-displacing power only. Thus, for instance, one would find in Craven the following arrangement :

Sáisi A. the business of a groom.
Shaitán A. the evil spirit.
 Saiyád A. a hunter.

SECTION II.

The Hindustani Homophones and Word-sequence.

Certain groups of Hindustani letters are remarkable for the fact that the letters of each group, while differing in shape and origin, are sounded alike. These *homophonous* letters, as they are called, constitute another source of confusion in dictionary arrangement.

The proposals which I intend putting forward in this new connection do not differ in kind from those already made with reference to the aspirates. It remains understood that in this Section, as in Section I, correct spelling, and the time-honoured symbols for it, are provisionally regarded as intangible principles. My main object at present will be to show that, in the word-sequence of existing dictionaries, real inconveniences are traceable to each homophonous letter-group, and to point out how those inconveniences could be removed.

(1) The sound which in our English alphabet comes second is expressed in the Hindi alphabet by *two* different signs *ब* and *व*, respectively transliterated by *b*, *v*. Such a word for instance as *बिप्रा* is, "by common custom, colloquially" pronounced *bipar*, though "educated Hindus consider *vipra* to be the correct way of pronouncing" it.¹ Of this controversy all that I want to notice, is the fact that, as it is carried between the millions of India on the one hand and a few students of Sanskrit on the other, no early solution of it can be hoped for.

Under these conditions a Dictionary, I contend, should take no side. Especially it should not, in a matter of pro-

¹ Pincott, *Hindi Manual*, pp. 5 and 6.

nunciation, handicap itself by siding with the few against the millions. It should stand neutral. For, of the two contending parties, which one are district judges, planters, merchants and missionaries more interested in understanding? With whom have they to deal?

Why then, in existing dictionaries, do we find a chapter headed *B*, and another chapter headed *V*? why, in consulting Forbes or Craven for such familiar and universal pronunciations as *bastu* and *bibhāg*, should one have to turn to the *V* chapter? And so again, in the case of Craven, for *baikunth*, *belā*, *bichārak*?

There exists a simpler plan than that of cross-references (which require too much editorial method and are unpleasant), or that of double-entries (which tell too much on the bulk of a volume). This plan consists in accounting, so far as word-sequence goes, *v* to be identical with *b*. Thus we would have, in Craven, under a *BV*-chapter such arrangements as are indicated in the following specimens:—

| | | |
|-----------------------|---------------------------|---------------------|
| bamlā H. a hole, etc. | basti S. village. | bij H. grain. seed. |
| van S. a forest. | vastu H. object. | bijak S. ticket. |
| bān H. temper. | bástu S. site of a house. | vijay S. victory. |

(2) *K* and *q* are other homophonous symbols to which in Craven a regrettable influence has been allowed.¹ Hence two chapters, respectively headed *K* and *Q*, for one initial sound. Nor are there cross-references or double-entries to be found in either.

The consequence of this is that unsophisticated learners will be unable to obtain dictionary information regarding a number of words continually bandied about their ears. For they will turn, naturally enough, to the *K*-chapter for such hackneyed terms as *qabūliyat*, *qabza*, *qadam*, *qaid*, *qāim*, *qalam*, *qinūngo*, *qarār*, *qasāi*, *qism*, *qismat*, *qist*, *qurān*, *qusūr*. Even long after it has dawned upon them that not all words of similarly sounded initial are classified together, they will again and again, in particular cases, fail to bethink themselves of turning their discovery to good account. And, at all events, they will deem that their dictionary arrangement presumes very much upon their patience and leisure.

A more commendable pattern of word-sequence would be that exemplified here below:—

¹ This particular criticism cannot be levelled at Forbes' Dictionary, in which the Persian *qāf* is figured by *k*, this *k* wielding no ordering power distinct from that of *k*.

| | |
|----------------------------|---------------------------|
| Kaid A. deceit, fraud. | Bakáwal P. head-cook. |
| Qaid A. confinement. | Baqáyá pl of báqí. |
| Qáida P. foundation. | Bakbakáná H. to prattle. |
| Qaidí P. prisoner. | Bakel H. twine. |
| Kaifyat P. quality. | Bakherá H. wrangling. |
| Qail A. confessing. | Bakheriyá H. quarrelsome. |
| Kainát A. existing things. | Báqí A. remnant. |

(3) Four other Persian consonants which loan-words have imported into Hindustani are, all of them, of the *z*-type.¹ The sound however, which Hindustani speakers give to those foreign letters indistinctly is *j*, a sound which already belongs to their own ज and, in certain positions, to च (thus सूयँ *súraj* and यदि *yadi*). In short, of the consonantal sounds *j* in the composite Hindustani alphabet, no fewer than six are or may be that of the English *j*. Unfortunately, neither Forbes nor Craven treats them as such.

Is there in any part of India, I wonder, a resident whose ear has not long been familiarized with such pronunciations as *bajár* (market), *jarúr*, *jar*, *jiyáda*, *julm*?

If no other written initial can fit these foreigners but the (doubtfully) etymological *z*, let them have it by all means, yet as an article of dress only. For since, in nature, the sound of that symbol is, and likely will remain, that of a *j*, eccentric words of the kind should, in a dictionary, find a home among the *j*'s. A white crow, I grant, does look a little awkward among its mourning brothers: yet, if, for the matter of that, it wanted a home all to itself, it would be a lost bird.

In conclusion, the word-sequence which, for all Persian and Arabic terms containing a *z*, would appeal to me not only as practical, but as free from academic bias, would be the one exemplified in the subjoined *tableaux*. They represent portions of an imaginary chapter *J(Y)Z* in a future edition of Craven's.

| | | | | |
|----------|---------|-------|---------|------------------|
| jarrár. | jiyá. | jonk. | julláb. | bajani. |
| zarúr. | ziyáda. | zor. | zulm. | bajar H. hard. |
| zarúrat. | ziáfai. | jar. | julús. | bazár P. market. |
| jarwái. | ziyán. | | | bajbajá. |
| | jiyáná. | | | |

The Hindi words (they are few) in which an initial च is pronounced *j* (thus yátrá) would require double-entries of

¹ Craven esteemed (rightly in my opinion) that, since those four *z*'s are sounded alike by Indians, one written symbol (viz. plain *z*) would do for them all, in the Roman transliteration of *Hindustani*. In fact, in a *Hindustani* dictionary, a multiplicity of dots purely etymological and without influence on pronunciation seems purposeless. Why should Persian and Arabic learning go out of its way to perpetuate, in the Hindustani romanized spelling, distinctions which Hindustani pronunciation does not recognize? I should call this academic nicety out of its place

identical spelling, under J and Y. This Craven actually does, except for *jadi* and *jatan*. Forbes also omits *jadi* under J.

(4) There is hardly matter for expressing a wish with regard to the twofold utterance of ञ. As far as I have been able to ascertain, optional pronunciations like *mānush* and *mānukh* have received due attention in the shape of cross-references or double-entries. Craven, however, fails to record *bhākhā* as a double of *bhāshā*.

(5) There can be, of course, no question of wishing that, even for word-sequence only, the Persian *f* be reckoned identical with the Hindi ञ. The reason is that, for *ph*, the pronunciation *f* is vulgar, and mostly confined to Europeans, who alone imagine that ञ contains an *h* somewhere. He who, on that account, would miss a word in his dictionary, had better obtain a smattering of Hindi pronunciation as given in the first pages of any grammar.

SECTION III.

The Nasal Tone and Word-sequence.

The nasal twang with which certain vowels in Hindi words are pronounced is expressed in the Nāgarī script by a dot surmounting the affected vowels. This upper dot is romanized in Craven and Forbes by the letter *u* or *ñ* printed after the nasal vowel.¹ There exists another transliterating system, in which the Nāgarī dot is figured by an upper sinuous line, thus *ạ̄, ị̄, ụ̄; ạ̃, ẹ̆, ị̆, ộ, ụ̂; aụ̃, aụ̃*.

Both manners of symbolizing the nasal tone may, if I mistake not, be termed official. At any rate the upper sinuous line is found in some of the Oriental books printed by the Government of Bengal, for instance, in Hahn's *Kurukh* (Oraon) Grammar and Folklore. The Oraon nasals, of course, do not differ in sound from the Hindi nasals.

The great advantages of the latter system will be put in evidence by a few observations, which I beg leave to submit.

(1) In Dictionary word-sequence, a Hindustani word of which a nasal vowel is figured by a letter (*u*, *ñ*) *tacked on* to that vowel, necessarily forfeits the relative rank that would have otherwise belonged to it. The word is thereby dissevered from all cognate words, from words (I mean) of identical derivation, in which that same vowel keeps its natural sound. Thus thrown into strange surroundings, it will lose the

¹ The Hindi symbols *āu*, *ou* are sounded exactly as *an*, *on* in the French words *ban*, *bon*. It was this very analogy no doubt which, with the initiators of the romanized alphabet, decided the whole matter of how to symbolize the Nāgarī nasals. In those early days, one system did not appear fraught with consequences of a confusing kind more than any other system.

advantage of having its pedigree, so to say, written on its face. Every scholarly-minded person will agree that such an arrangement is regrettable.

(2) But here is a more serious inconvenience. As a rule, the nasal tone in a particular word does not constitute a fixed and universally prevailing character of the pronunciation of that word. In one portion of the Hindustani-speaking area, a strong twang may mark one of its vowels, while in a neighbouring area the nasal character will be lacking altogether. Thus, in Forbes, the two headings *dāñw* are, from their significations, evidently identical with the Persian and Hindi *dāw*; *kanañdā* is but another form of *kanaurā*; so again *bhañknā*, to bark, is the same as *bhoknā*.

Worse than this. Within a Hindustani word as pronounced in the same town or village of Hindustan nothing is more jumpy and erratic than the nasal sound, if the word contains any. A twang often shifts from one vowel to the next, or even reduplicates itself, seemingly for no reason at all. Thus, in words in which a nasal *a* is immediately followed by *w*, the twang often travels from *a* to *w*, which then becomes vocalized to *o* or *u*. For instance *chhāñw* = *chhāñ*, *gāñw* = *gāñ*, *pāñw* = *pāñ*, *sāñwā* = *sāñlā*, *bhañwār* = *bhañrā*, *Urāñw* = *Urāñ*. Forbes sometimes needs three entries for one nasalized word: thus for *dāñwāñol*, *dāwāñol* and *dāñwāñol*.

It is clear, I believe, that since a nasal sound is liable to so much knocking about, its Roman sign (whatever it be) should never enjoy a word-displacing power in dictionary sequence. There are three possible schemes for this: (a) Either double or triple entries should be provided methodically and exhaustively; (b) Or the symbols *ñ*, *ṇ* should be discarded and replaced by *~* or, still better, by the Nāgarī upper dot itself; (c) Or, if *ñ* or *ṇ* cannot be abandoned, these letters should, in a dictionary, be allowed no influence whatever on word-sequence. To the *h*-ignoring principle as recommended there should correspond an *ñ*- or *ṇ*-ignoring principle.

In the following tableau the ordering power of letters, as exhibited in Forbes and Craven, is contrasted with the ordering power here recommended. Such complex notations as *b[bh]* mean that the *h*-element of the aspirate is allowed the power of determining a sub-class within the general class of words beginning with the *basic* and main letter (which in the example chosen is letter *b*).

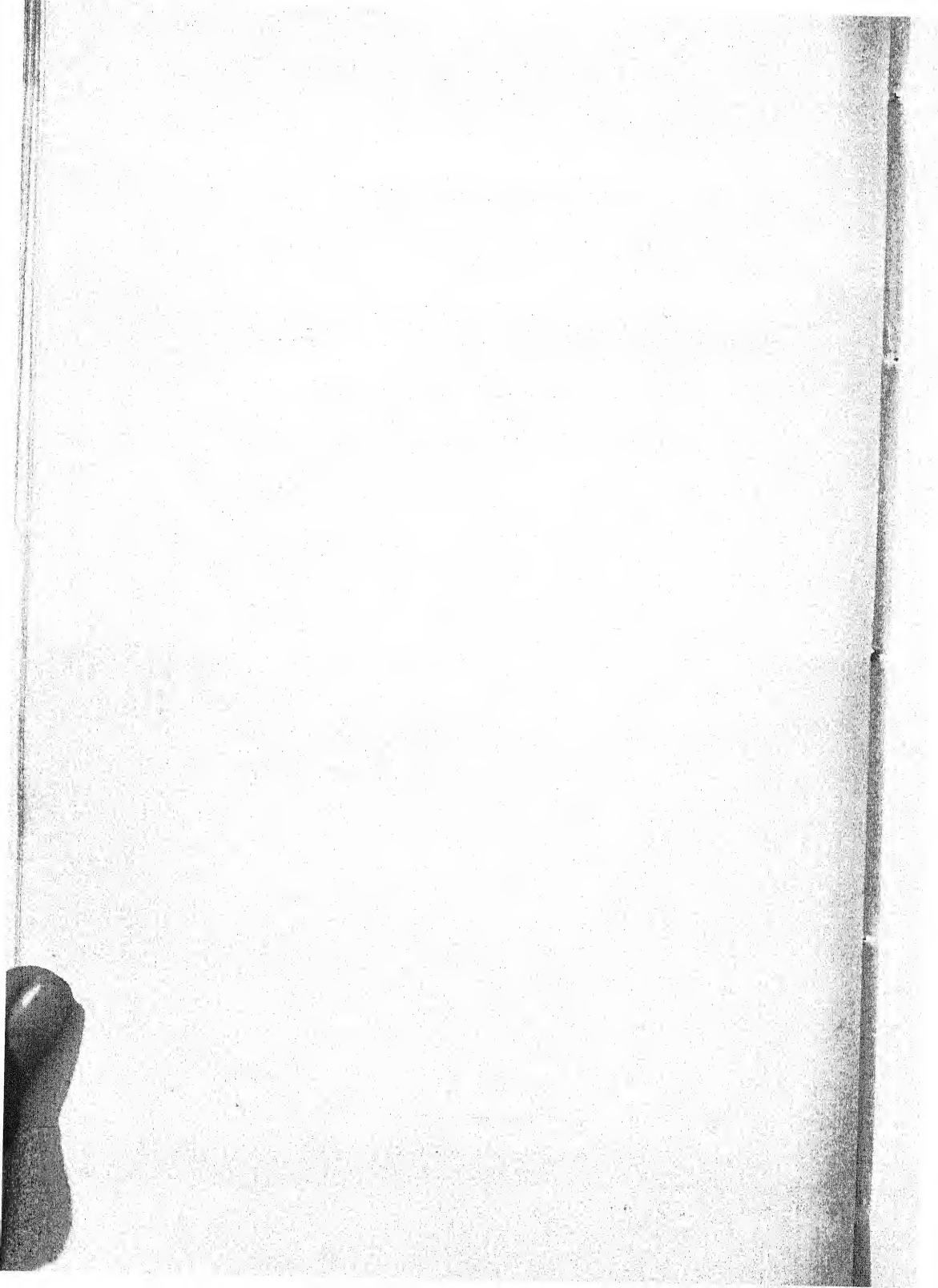
| Forbes' order. | Craven's order. | New ordering power. |
|--------------------|--------------------|--|
| b[bh]. .. | do. .. | b = bh = v. |
| ch[ehh]. .. | do. .. | ch = ehh. |
| d = q[dh = dh]. .. | do. .. | d = q = dh = dh. |
| g[gh = gh]. .. | g[gh = (r = g)] .. | g = gh. |
| j[jh] .. | do. .. | j = jh = z = zh = (<i>in a few words</i>) y. |
| k = k[kh = kh] .. | k[kh = kh] .. | k = q = kh = kh. |
| n .. | n .. | <i>no word-displacing power.</i> |
| p[ph] .. | do. .. | p = ph. |
| — .. | q .. | — |
| r = r[rh] .. | do. .. | r = r = rh. |
| s[sh] .. | do. .. | s = sh. |
| t = t[th = th]. .. | do. .. | t = t = th = th. |
| v .. | do. .. | <i>see under b.</i> |
| z[zh] .. | do. .. | <i>see under j.</i> |

No alteration as to the ordering power of *vowels*, or of *f, h, l, m*, natural *n, w, y*, is here advocated. Of course, in the dictionary chapter headed by any letter *whatever* of the alphabet, an altered word-sequence may be demanded for *some* words, if they contain as medial or final any of the aspirates, homophones or nasals of which we have treated.

*St. Mary's College,
Kurseong.*

Proceedings
of the
Asiatic Society of Bengal
for 1923.

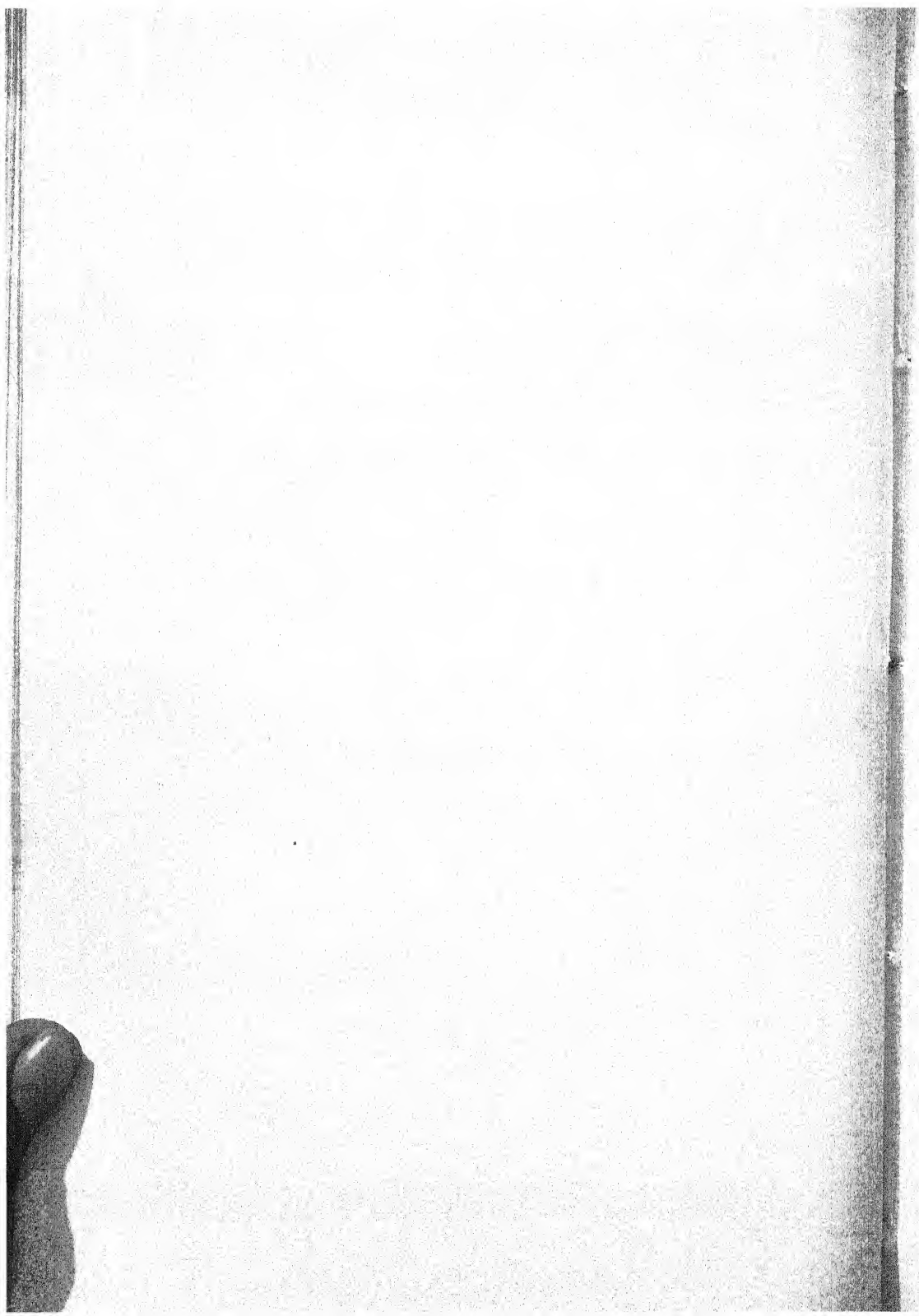
[Journal and Proceedings of the Asiatic Society of Bengal.]



Proceedings, Asiatic Society of Bengal, 1923.

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Proceedings of the Annual Meeting, 1924.

The Annual Meeting of the Asiatic Society of Bengal was held on Wednesday, the 6th February, 1924, at 5-30 P.M.

N. ANNANDALE, Esq., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the Chair.

Members present :—

| | |
|--------------------------------|-------------------------------|
| Abdul Ali, Mr. A. F. M. | Johanns, Rev. P. |
| Abdul Latif, Syed | Kazim Shirazi, Aga Muhammad |
| Abdul Wali, Maulavi | Khuda Baksh, Mr. S. |
| Annandale, Dr. N. | Knowles, Major R. |
| Bhandarkar, Dr. D. R. | Law, Babu Bimala Charan |
| Biswas, Mr. K. P. | Law, Babu Satya Charan |
| Brahmachari, Dr. U. N. | Maitra, Babu Shishir Kumar |
| Brij Narayan, Esqr. | Majumdar, Prof. B. C. |
| Brühl, Dr. P. J. | Manen, Mr. Johan van |
| Chaudhuri, Dr. B. L. | Mehta, Mr. R. D. |
| Chopra, Mr. B. N. | Miles, Mr. W. H. |
| Cleghorn, Miss M. L. | Mookerjee, Sir Rajendra Nath |
| Collenberg, Baron H. Rüd't von | Mukherji, Mr. S. |
| Connor, Mr. J. W. | Ottens, Mr. H. |
| Das-Gupta, Prof. H. C. | Pascoe, Dr. E. H. |
| Deb, Mr. H. K. | Prashad, Dr. B. |
| Dikshit, Mr. K. N. | Raman, Prof. C. V. |
| Doxey, Mr. F. | Ray, Prof. H. C. |
| Dunn, Dr. T. O. D. | Ray, Kumar Sarat Kumar |
| Ghatak, Prof. J. C. | Ray Chowdhuri, Prof. H. C. |
| Gupta, Mr. N. | Rethmeyer, Mr. W. H. |
| Gurner, Mr. C. W. | Singha Roy, Rai Bahadur Lalit |
| Hannah, Mr. H. Bruce | Mohan |
| Hora, Dr. S. L. | Sinha, Raja Bahadur B. N. |
| Iyer, Mr. L. K. A. | Sircar, Babu Ganapati |
| Jackson, Mr. P. S. | And others. |
| Jain, Mr. C. L. | |

Visitors present :—

His Excellency the Earl of Lytton, Governor of Bengal.

| | |
|-------------------------------|-----------------------------------|
| Abul Kasem, Maulavi | Grant, Col. J. |
| Armstrong, Mr. E. G. | Gupta, Mr. N. N. |
| Armstrong, Mrs. J. E. | Gurner, Mrs. C. W. |
| Banerjee, Dr. B. B. | Harvey, Mr. & Mrs. C. H. |
| Banerjee, Dr. Gaurang N. | Jackson, Mrs. A. M. E. |
| Barnardo, Lt.-Col., F. A. F. | Kramrisch, Dr. Stella |
| Chakravarti, Mr. T. | Letapier, Mr. |
| Cooper, Mr. B. M. | Maitra, Mr. H. C. |
| Cotton, Hon. Mr. H. E. A. | Nazir Ahmad, Hafiz |
| Craig-Brown, Mrs. | Panton, Hon. Mr. Justice E. B. H. |
| Datta, Mr. H. N. | Pearson, Hon. Mr. Justice H. G. |
| Fallow, Rev. J. | Raksha, Mr. L. M. |
| Falsen, Mr. H. A. | Roy, Mr. P. L. |
| Fani, Mr. Roger | Sarkar, Mr. B. B. |
| Ghose, Hon. Mr. Justice B. B. | Sen, Prof. Benoy K. |
| Ghosh, Mr. S. C. | Shaw, Babu Pran Krishna |

Silfwerhj  lm, Mr. C. A. E.
Sokhey, Mr. L.
Srinivasa Rao, Mr. H.
Teixeira, Rev. A. A.
Townend, Mr. H. P. V.
Trout, Mr. & Mrs. E.

Tullio, Dr. G.
Urquahart, Prof. W. S.
Verschuur, Mr. Antonie
Westockhaven, S. J., Rev.
Whitehouse, Mr. B. E.
And others.

The President ordered the distribution of the voting papers for the election of Officers and Members of Council for 1924 and appointed Miss M. L. Cleghorn and Dr. S. L. Hora to be Scrutineers.

The President also ordered the distribution of copies of the Annual Report for 1923 and called on the General Secretary to make a few remarks upon it.

The Annual Report was then presented. (Follows separately.)

At 5-50 P.M. the President vacated the Chair and invited the Hon'ble Mr. H. E. A. Cotton to occupy it during his absence from the room.

The President, the Treasurer and the General Secretary then left the meeting room to receive His Excellency, the Earl of Lytton, Governor of Bengal, Patron of the Society.

On the arrival of the Patron at 6 P.M. the President introduced the Council to him, addressed a few words of welcome to him and invited him to occupy the Chair.

After his installation, the Patron called on the retiring President to read an Annual Address. (Follows separately.)

After the reading of the Annual Address, the Scrutineers reported and the President announced the results of the Council election. (Follows separately.)

The retiring President, after announcing the new Council, gave place to the President for 1924, who thanked the Society briefly for his election and invited the Patron to address the meeting.

The Patron then addressed the meeting. (Follows separately.)

After the reading of the Patron's address, the President for 1924 briefly thanked the Patron and made the following announcements.

Elliott Prize for Scientific Research for the year 1923.—
"The Prize is awarded to Mr. Bhailal M. Amin, B.A., First Assistant to the Indigo Research Chemist, Pusa."

Barclay Memorial Medal for 1923.—"Consideration has been deferred to 1924."

Election of Fellows.—“ No valid nominations having been received, no Fellows are elected this year.”

Associate Members.—“ The Council proposes for election as Associate Members of the Society :—

Mr. Wladimir Ivanow, and Pandit Kamal Krishna Smriti-tirtha.”

After these announcements the President declared the Annual Meeting to be dissolved and invited those present to examine a number of Exhibits. (Follows separately.)

At 7 P.M. the Patron left the meeting, conducted by the President for 1924, after which the President called a Monthly General Meeting for the transaction of business.

ANNUAL ADDRESS, 1923-24.

It is a useful, but not a universal, custom for your president to preface his annual address with a statement as to the progress of the Society. This practice I propose to follow to some extent, but my selection of data will be eclectic and the facts I cite are cited to point a moral. A more detailed and detached account of the work of the Society will be found in the annual report. Our research work, as most of you know, is divided into five sections, which are called, for want of better names, the Philological, the Natural History, the Physics, the Anthropological and the Medical Sections. To each of these at least one honorary secretary is allotted, whose function it is to encourage and organize its special work.

Into the arcana of the Medical Section it behoves not a layman to penetrate, but I would lack appreciation if I failed to congratulate Major R. Knowles, our medical secretary, on his success in convening special meetings of his section.

The name of the Philological Section is anything but descriptive. Of recent years it has done little that can be called philological in a restricted sense, but it includes in its scope Oriental literature, history, archaeology and even art. Its chief work in the last year has been the necessary task of taking stock of its possessions. Three catalogues of the ancient manuscripts in our possession or held in trust by us for government, have been published or are on the eve of publication, each of prime importance in its own line. The work of cataloguing a large collection of Oriental manuscripts entails much drudgery, but is by no means a mere mechanical process. It calls for the highest scholarship, the most acute critical faculty and the most devoted self-negation and restraint. It can be done only on the spot where the manuscripts are stored. The catalogues of manuscripts issued by the Society are, therefore, a very real part of our work, carried out, as they are, in our own library and by scholars who devote themselves in a special sense to our service. Even to those of us to whom the manuscripts are sealed books, the three catalogues should be objects of legitimate pride. I refer to the second and third volumes on Vedic works and on historical and geographical manuscripts, by our most distinguished Sanscrit scholar in Calcutta, Mahamahopadhyaya Haraprasad Shastri, C.I.E., and to the catalogue of Persian manuscripts by Mr. Wladimir Ivanow. The Shastri's previous work is known to all orientalists; his new volumes will enhance his own reputation and that of the Society throughout the civilized world; but I would rather dwell on the work of Mr. Ivanow, a scholar new to the Society, both because I have myself engaged in

studies that may be reckoned as Islamic and because it is one of the most pleasant duties of the chairman of a learned body to welcome fresh talent. Mr. Ivanow has laboured under great difficulties; his diligence and application have been beyond all praise, and even to one who is not a Persian scholar his concise descriptions of the manuscripts convey a sense of scholarship and proportion.

In the work of the Natural History Section I have myself taken so large a part that it is difficult for me to judge it fairly. The zoological papers seem to me accurate rather than profoundly original. I would, however, call your attention to an interesting memoir, to be issued shortly in our Journal, on the botanical ecology of Burma. This is by Dr. L. Dudley Stamp, now professor of geology in the new Rangoon University, and Mr. Leslie Lord, I.A.S. Its importance lies in the careful correlation of geological, meteorological and botanical data; for correlation is what is lacking in most scientific work of the present day.

Anthropology in all its branches is at present undergoing a crisis: it is struggling to become scientific and to escape from the trammels of sentiment. The branch which has perhaps been most sedulously cultivated in India is prehistoric archaeology, a subject that provides abundant scope for the imagination—if imagination it be to erect æry edifices of theory on an imaginary basis. Fortunately the echoes only of the fall of such theories have reached our Society, but the echoes have reverberated. In spite of defects, the prehistoric work of Indians has been belauded by European prehistorians—often, I am afraid, on the principle on which Dr. Johnson praised women preachers and dancing dogs. Some of the work is sound; it is often well expressed, but its lack of caution betrays a lack of maturity and judgment. If Indian anthropology is to take a permanent place in the comity of learning it must purge itself of crudities and extravagance. When I think of the anthropological opportunities we waste in India I can hardly restrain my indignation. There is no branch of science which gives so great a scope for humbug, none so readily prostituted to politics, none that calls for greater detachment and caution, and none more important to the human race. The most promising work recently communicated to our Society is Professor P. C. Mahalanobis's mathematical analysis of anthropometric data.

Chemistry and physics, both of which come within the purview of our Physics Section, do not lend themselves to the purely Oriental studies to which our Society is pledged. We have received a few short papers in this section, mostly from the Indian Science Congress, but nothing of great importance has been published. It is unfortunate that our distinguished Indian physicists rarely deign to publish the first fruits of their best work in India.

We publish annually two supplements to our Journal which are closely associated with, rather than actually incorporated in the work of the Society. I refer to the Numismatic Supplement and to the Report of the Indian Science Congress. The former is edited by our numismatic secretary, who is not a member of our Council and does not reside in Calcutta. The papers included in it are not submitted in the ordinary course to our publication committee. By their publication, however, the Society assists in the work for which it was founded and its Journal gains in circulation. This year's supplement has been issued with a separate pagination and contains much interesting matter.

Our relations with the Indian Science Congress are perhaps unique, but they are none the worse for that. The Congress from the time of its birth has placed itself under the ægis of the older body and we have undertaken the administration of its affairs when it is not in session. Subject to powers of veto, we publish the proceedings of its meetings and consider for publication in full in our Journal or Memoirs the manuscripts of papers read to its sections. In doing all of this we assume our proper position as the leading and most firmly established learned body in India. It has been decided that in future the report, which increases year by year both in bulk and in scientific value, shall be issued as a separate publication by our Society, which contributes half the cost of printing.

Apart from the catalogues to which I have referred and of certain works in the *Bibliotheca Indica*, our main labour in the last year has, however, been that of administrative reform. Active members of a learned body are rightly suspicious of anything that is merely practical, for it is one of our main duties to remember, and make others remember, that the ponderable is not the final test, nor the sure foundation, either of civilization or of virtue. It is, nevertheless, a prime necessity that a learned body should be well administered, and by good administration I do not mean the invention or pursuit of officialdom, which is a curse and not a blessing, but the assurance that our finances are managed in such a way that we get the best return for our money, whether in material or in intellectual gains, that the correspondence of our office is conducted efficiently and with as little friction as may be, that our meetings and publications are well organized and that our material possessions, our buildings, our historical and artistic treasures, and even our files, do not fall into disorder or disrepair. Unless your Council can effect all of this it is unworthy of your confidence. That we are alive to the danger is evident from the fact that we have nominated as your president a business man of the capacity and status of Sir Rajendra Nath Mookerjee. We can trust to him, if to any one, that the reforms we have instituted will be placed on a permanent basis.

On assuming this chair a year ago I said that there were two kinds of pessimists, those who said that things were bad and could not be improved, and those who said that things were bad and must be improved. I claimed that we might all belong to the latter class. These words, which seem to have caused offence to some of our weaker brethren, were not idle words. I knew that our building was almost falling over our heads, that the administration of our office was almost bankrupt, that our resources were being wasted through lack of co-ordination and caution, and that our manuscripts, copper-plates, pictures, etc., were not being properly conserved. This was no one's fault in particular. Our office had been for over thirty years in charge of an assistant secretary, who kept its administration in his head; our honorary secretaries were busy men who had no time to go into details; the war had disorganized our correspondence, and there was a lack of co-operation and energy in every department. I believe that this was due largely to the fact that members of the Society had left things too much in the hands of the Council—not that the members of the Council were indifferent or negligent; but because we were perhaps concerned a little too exclusively with the intellectual part of our duties. Like the honorary secretaries we were all busy men, engaged in intellectual work. To excuse ourselves would be to accuse; it is better to be frank in such matters and I may say that I have been a member of the Council myself for the best part of twenty years. I am one of those who think that it is better to wash dirty linen in public than never to wash it at all.

It is, however, easy enough to confess failure when it is well on the way to be retrieved. We meet without debt in a building entirely renovated, thanks largely to the generosity and skilful workmanship of our builders, Messrs. Martin & Co. It is now one of the soundest and one of the handsomest in Calcutta. The administration of our office has been reformed; stock is being taken of all our publications, indexes have been prepared for former numbers of our Journal and the departments of correspondence and finances have been correlated. A committee of artists and scholars is re-arranging our pictures and historical documents, and a body of volunteers is at work in the library. All this has been brought about by the appointment of a general secretary who can devote his full time to the Society's administration, and also by close co-operation between the general secretary, the honorary treasurer and the president. This much I may claim for my own share in the work, that I have supported the general secretary, and not opposed the virtuous caution of our honorary treasurer too strenuously. Mr. J. van Manen, in whose person the old post of general secretary has been revived, possesses, if he will pardon my saying so, qualities very rare in a scholar. He is at once a man

of learning and a man of affairs, almost as capable of making a business-like disposition of a practical problem as of editing a Tibetan text. It is a rare good fortune of the Society to have secured his services at a time of crisis. Professor Raman's mathematical knowledge has not made him ignorant or scornful of sound finance: physics and finance are perhaps an even rarer combination than business and Oriental learning. We are not out of the wood yet, though our finances are sound, but there is every hope for the future, if members and Council will work together. I would appeal to all members of the Society who have complaints or suggestions to make, not to grumble, but to make them direct to the Council, which will welcome criticism, especially if it be constructive. We only ask that it be practical. The Council must be in a real sense representative of the general body of active members if its administration is to be sound.

Like most of those who have to deliver a presidential address I have been troubled both as to the subject of my discourse and as to the means of expressing what I had to say. For inspiration I have gone to the ten addresses delivered by our founder Sir William Jones, over a century ago. It is a hundred and forty years since the first of these was composed, but their spirit endures and their lesson for us is still a living lesson. Their most vital point is growth, their most urgent appeal for combination, their great moral lesson the absence of intellectual selfishness. When he gave his inaugural address to this Society in January, 1784, William Jones had newly arrived in the country with some reputation as a student of Persian. He was eager for all knowledge about India and the other countries of Asia, determined that such knowledge should be rendered available; but he had not as yet any acquaintance with the Sanscrit languages. In his addresses, which cover a period of nine years and at first contain much that was ephemeral and even to our modern eyes a little absurd, we see him gradually becoming a profound Sanscrit scholar and finally the leading authority on a new subject, in a sense the founder of Indian history as well as of our Society, itself the mother of scholarship in India. And yet there is no boasting, no exultation even, but merely a calm statement of facts, logical deduction and general principles.

All this was brought about by the combination of two very different types of intellect and training, which, alas, it seems no longer possible to combine. There was that of the cultured Englishman whose classical education was something more than a mere cramming of Greek and Latin notes, for it had become a part of his very self and he thus understood the comparative method; and there was that of the Indian pandit, who knew every iota of his text and knew it honestly and accurately. Accuracy and comparison are the twin pillars of all modern learning, and those who would call themselves scholars

must combine the two, for one is useless without the other. The pandit is still with us; but he remains where he was; the young Indian patriot despises him and the English official who becomes a scholar in India is no longer with us, or exists as a bird rare on the earth, haunting the lonely places of the jungle.

We are told that this is due to the strenuous life of the present age as compared with the leisure of the past. The life of the present day with its constant journeyings and junketings is not conducive to study or application, but we must remember that if life was less strenuous a century ago it was also much more difficult, not merely in material things, but in all the apparatus of learning. Books and instruments were difficult to obtain, Indian history and literature were buried in obscure manuscripts, and the very unhealthiness of existence, the high mortality among the scholar's friends, his own attacks of fever and physical depression, the Gargantuan meals he was forced by custom to make, the universal drinking of heavy drinks unsuitable to the climate, all this must have hampered and restrained him in a manner which it is difficult for us to appreciate to-day.

Like the light ladies who exercise a posthumous fascination over our Calcutta historians, the past has a glamour of its own; but it is no false modesty on our part to confess that our predecessors as pioneers were better men than we are, that their work had a fundamental importance which ours can never gain. We have no longer the whole of Hindu history, the whole of Sanscrit literature, before us as an uncharted ocean of learning unexplored; the outlines of evolution, the fundamentals of electricity, of physical chemistry, even of physiology have been discovered by our predecessors; we know that the Greeks of history were not the pioneers of civilization in Europe; Egyptian and the languages of Assyria can be read with ease; even American archæology has become a branch of polite learning, and the scripts of Crete and Asia Minor and Mexico will doubtless soon be deciphered, adding we know not what to the history of Asia and the world. These things were hidden from Sir William Jones and his contemporaries, but the very exuberance of our knowledge renders it inoperative: we are all specialists, none of us philosophers.

The question that has oppressed me as your president for the last year is this, "We may have maintained or even improved our material position, but how far have we grown in learning?" A learned body which does not grow in learning is well on the way to decay. The question is hard to answer, for the difficulties and dangers of our position are clearer at the moment than any progress a year can show. What then are the difficulties and dangers? If we are to discuss them we must discuss them frankly. One of the profound psychological facts utilized by the Roman Church is that confession

is good for the soul; modern psychologists tell us that it is also good for the body, and I believe that this is just as true for a public body as for an individual. Much of the difficulty of modern life is due to subconscious or conscious suppression, to what is wrongly called tact, and without confession we cannot consider our position fairly. If only Governments and other responsible bodies would frankly confess the mistakes they are bound as human institutions to make, there might be some sanity in politics. I do not think that our difficulties and dangers are essentially different from those by which societies like our own are beset in other countries. They may differ in degree, but not in kind; some of them may be greater in India than in Europe or in America, but the converse is probably true also. The readiness with which our administration has responded to reform proves the essential soundness of its fabric.

There are two main dangers which surround learning at the present day in all countries, namely officialdom and the low standard of politics. The real needs of every country are sanitation and education; the first object is to provide healthy minds in healthy bodies for the great majority of the race: from this all other good things would flow. It could not be done in a day, but with the aid of learning in the widest sense I believe that statesmen could achieve it in the end. But we live in an age of politicians. The function of the politician is compromise and expediency; his appeal to prejudices and emotions, not to reason or the inherent virtue of mankind. Original sin is his happy hunting-ground. Prejudices and excited emotions are alien to a body whose cult is that of learning, and I am convinced that one of the reasons why our Society has weathered the storms of nearly a century and a half and has lived to twice the allotted age of man, is that it has never touched politics. The day that brings politics into the Asiatic Society of Bengal—and I trust it will never dawn—will mark the beginning of the destruction of the work of Sir William Jones and his colleagues, for learning belongs to no party and no race.

Under a bureaucratic government—and there is no form of government so bureaucratic as democracy—the danger of officialdom is always with us. It is particularly great in a society subsidized by government. Let me say at once that both the Government of India and the Government of Bengal have treated us liberally in this respect—not only in the funds they contribute to the Philological and Anthropological Sections, but in refraining from interference. I cannot claim that our administration of these funds has always been satisfactory, that the best use has always been made of the money, or the best men employed to do the work; but I do claim this, that far

more would have been wasted, and we would have had far less fruit to show, if government had insisted on introducing the extravagant methods of the Accountant General's office into the administration of these funds. I know of nothing more liable to cause their waste than the system of resuming all grants made for science or literature at the end of each financial year—as if it were possible to spend the allotted amount for universal subjects honestly within a time-limit so brief as a year!

Apart from government grants, however, the menace of officialdom is present, thanks to our optimists, in our domestic affairs. One of the points on which I have had to insist in our recent administrative reforms is that the making of new rules will not help us much. Sir William Jones said in his inaugural address a hundred and forty years ago: "perhaps it may be advisable at first, to prevent any differences of sentiment on particular points not immediately before us, to establish but one rule, namely to have no rules at all. This only I mean, that, in the infancy of any society, there ought to be no confinement, no trouble, no expense, no unnecessary formality." With the reduplication of the word "unnecessary," the last sentence is as true of the ripe old age as of the infancy of any learned body. Rules are always to a large extent concessions to human weakness and folly; if unduly multiplied or complicated they merely breed suspicion or become an anodyne, an excuse for refraining from action when a drastic operation may be necessary. Our rules have so far remained comparatively few and simple. Long may they remain so! Officialdom from without can hurt us little; it is internal officialdom I fear.

If we have as yet escaped the two main dangers which beset learning, ought we not to congratulate ourselves on our happy state? Some there be who would fold their hands and smile complacently—optimists; but I have confessed myself a pessimist, and to say that we have escaped these dangers does not mean that they have ceased to be dangers; nor are they the only dangers. The times are difficult for Oriental scholarship in India. We are at the parting of the ways and only the confirmed optimist can be quite sure that we are even in a state of transition. The greatest Greek scholars were never natives of Athens, Latin scholars of Rome or Egyptian scholars of Cairo; scholarship in Calcutta must prove itself an exception to the rule. I am always expecting great things of Indian scholarship, but must confess myself disappointed with much of the indology of India. Good work is done, but there is little true imagination or originality and progress is delayed, not accelerated, by wild extravagance, by the readiness with which those in authority accept a low standard and by the good-natured but injudicious praise of scholars

abroad to whom Indian scholarship comes as a surprise, as a new thing from which too much must not be expected. There can be only one ultimate standard for true scholarship : is it sound or is it not ? Praise bestowed on research for racial, political or official reasons is an insult to true learning, not a compliment. Nor is the abuse of others an argument in favour of sound work, for two blacks can never make a white.

In the Asiatic Society of Bengal we have at any rate attempted, not always successfully I fear, to maintain a high standard. In so doing I am convinced that we have done the greatest service to Indian scholarship. Unsound research is ephemeral ; like the parasite of a disease it produces its own toxin, but before its suicide it may destroy the body that nurtures it.

Work that has been done by our older scholars proves that sound work can be done on Indian literature in India by Indians, but our younger men are impatient. It is patience and moderation that are lacking, not brains. The work of most young men in all countries is potentially unsound, because their emotions are on a higher plane than their knowledge or their wisdom. It is easy for a teacher to arouse their emotions to fanaticism, much less easy to restrain them into fruitful channels. No great work of science ever depended on imagination alone ; restraint is also necessary.

Let me make it clear that I am not denying the importance of imagination in science. It is like the heat which starts a chemical reaction, but the chemist must have his furnace under full control in order that the product may remain after the fire is extinguished. By all means let us encourage enthusiasm, but encourage it in a way that will render it productive, that will produce from it solid and permanent results.

There are two directions in which I think our Society might do more than it has done to encourage sound scholarship—namely in introducing the young scholar to the literature of his subject and in broadening the outlook of the specialist.

In my own line of work I find that one of the chief difficulties of the research student is that he does not know how to use his books. This is just as true in Europe as it is in India. Neither at Edinburgh nor at Oxford was I taught how to consult a library, and perhaps it is a matter which the student must learn for himself. I have often been astonished—until I called to mind my own early difficulties—to find how ignorant many of those actually engaged in research were of all that had already been published on their subject. The books might be in the next room, but the student did not know what to extract from them, or even that it was necessary to extract anything at all. In Calcutta, in spite of all that has

been said, we are exceptionally well off for research literature on most subjects, much better off than they are in many university towns in Europe, very much better off than they are anywhere else in Asia.

That literature is not consulted here as it ought to be is due to several causes, for example, ignorance of European languages and of those of the Far East, lack of imagination and breadth of outlook on the part of both professors and students, and, above all, to the spirit of the school, which proclaims, as a former Master of my old college at Oxford is fabled to have done, "All there is to know, I know it, and all I don't know isn't knowledge." When I was studying primitive magic among the half-civilized Malays of the Patani States some twenty years ago I often heard a saying which struck me much—*lain bômor lain skôla*, "every medicine-man his own school." This saying might be applied to subjects more exalted than magic. Complaints have reached me as president of this Society that young scholars, and sometimes even scholars of established repute, are *afraid* to submit their papers to our publication committee, because they are pupils or friends of some one who has opposed a member of the committee or of the Council, as a rule on some totally different issue. Such complaints indicate, perhaps, a certain weakness on the part of those who complain, but surely the premier learned society in Asia should be above the reproach they convey? They prove that the school is defeating its own end, and that the mutual assistance for which it grew into being is working it disservice; if there is the slightest truth in their implied reproach they also prove that we in the Asiatic Society of Bengal must put our house into order in other respects than the purely administrative. No worse accusation could be brought against our Council than that of favouritism in research. To my mind it is as bad as any other form of dishonesty, and I trust that our senior scholars will insist on any charge or insinuation of the kind being investigated fearlessly.

To return to the young scholar and his books. It is a worthy function of our Society to bring the two together. This we are doing to some extent by our catalogues of manuscripts and by Dr. Kemp's invaluable catalogue of the scientific periodicals available in Calcutta libraries, but steps should be taken to keep the latter up-to-date and to provide an index to learned periodicals outside the scope of science: there are few even of these which have escaped Dr. Kemp's net. Much would also be effected if senior scholars would set their pupils and followers to prepare bibliographies of the subjects on the study of which they were engaged. This would assist the older men and would be still more beneficial to their juniors, to whom the labour would impart an idea of the true scope of their investigations. Young men would be much better employed

on laborious work of this kind than in snatching at impossible theories, the aim of which is to illustrate the author's wit, the result to prove him young if not a fool. The work would teach him, or ought to teach him, that a sense of proportion, a devotion to truth are greater things than any sensational discovery.

In my other proposition, that we should encourage breadth of outlook among scholars, I am, I fear, treading on still more delicate ground. Oliver Wendell Holmes in his delightful "breakfast table" series uttered much practical wisdom, but to us naturalists at any rate his most abiding sketch is that of the "Scarabee"; for what he wrote as a caricature has become a literal portrait. The Scarabee, you will remember, was an entomologist too modest or too diffident to claim a special knowledge of the beetles as a whole but content with the title of scarabæist. He was, in fact, a specialist on the subfamily Scarabæinæ. Almost all of us "learned men," as we are called, must admit ourselves to be Scarabees, each in his own narrow sphere. Each of us, as the Malays say, is like a toad under a half cocoanut-shell. But I cannot admit that this is an ideal state of mind, though it be rife in all branches of learning. We are forced to be specialists not only by the complexity of our subject but also by the narrow views of those who write upon it. Can anything be more unscientific than a failure to recognize the essential unity of nature or of the intellect of man as a natural phenomenon? A single subfamily of beetles, a single literary work, may be a worthy object of study, but I am convinced that it cannot be sufficiently worthy to banish all knowledge of, all interest in, other aspects of man and nature from the mind of a reasonable man.

The catalogues and bibliographies we publish are invaluable to the specialist, and not merely to the specialist in the narrow sense, but to specialists on totally different lines they are of little interest. It is not one of the functions of a society like this to educate the uneducated, but we might do something to aid in the education of the learned. We might, for example, have honorary correspondents abroad and in India who would give us summaries of the work published or in progress in different countries and different cities. We should welcome authorized translations of important works in inaccessible languages such as Russian and Japanese, and should encourage the preparation of summaries of existing knowledge on special subjects by specialists who are willing to write for us in a language not too technical. I would suggest the foundation of a committee, on which we should welcome even those who were not members of the Society, to further aims of the kind. Sir William Jones in his inaugural address from which I have already quoted, laid down the limits of our studies as

the geographical boundaries of Asia, from which he found it impossible to exclude certain parts of Africa as a distinct entity. "If now it be asked," he said, "what are the intended objects of our enquiries within these spacious limits, we answer MAN and NATURE; whatever is performed by the one, or produced by the other."

When I began to consider the subject of my own address some months ago, I intended it to be some branch of natural history of which I had made a special study, but the preaching instinct is strong in Scotchmen and what I meant to be a mere introduction has already exceeded the limits I had set to my discourse in the point of length. The cobbler should stick to his last, and my profession is not that of the preacher; but the future of a great society such as ours must always be an object of supreme interest to a man whom you have done the honour to select as your president. I might have pronounced a eulogy, but a body so venerable as the Asiatic Society of Bengal need not crave for continuous praise or encouragement. Self-complaisance seems to me out of place, but we have no reason to fear the future, if only we put away childish things. Our Society has had a glorious past, but the past is past and even the present is past before we can grasp it: it is of the future we must think. The constant infusion of fresh blood must keep our Society young without destroying the maturity, the ripe wisdom or the prestige of age. We must be vigorous, cohesive, honest to ourselves and others, without respect of persons, devoted to pure learnings. Otherwise we fail in our pursuit of scholarship, we are unworthy of our predecessors. We must stand above party, above personalities; our affairs must be well ordered, our judgment unfettered. We must be bold, but not too bold; not afraid of being in advance of others, but careful that we do not out-strip reason.

My address has developed into a little sermon on the text "We have left undone the things which we ought to have done." Thackeray, the most eminent native of the city in which we meet, quotes and comments on Dr. Johnson thus: "Perhaps," he says, referring to a little boy who declined to go to a lecture, "Perhaps, he was of Doctor Johnson's opinion about lectures—'Lectures, sir! what man would go to hear that imperfectly in a lecture, which he can read at leisure in a book?' I never went, of my own choice, to a lecture: that I can vow. As for sermons, they are different: I delight in them, and they cannot of course be too long."

N. ANNANDALE,

President, Asiatic Society of Bengal.

February, 1924.

PATRON'S ADDRESS.

SPEECH BY HIS EXCELLENCY LORD LYTTON, GOVERNOR OF
BENGAL, AT THE ANNUAL MEETING OF THE ASIATIC
SOCIETY OF BENGAL, ON THE 6TH OF FEBRUARY, 1924.

LADIES AND GENTLEMEN,

I for one have listened with great interest and appreciation, though also with chastened thoughts, to Dr. Annandale's very able address. As he says, a body so venerable, so firmly established and with so wide a reputation as the Asiatic Society of Bengal, can afford to be criticised where other societies of lesser strength may require coaxing and praise. This is not only a comforting consideration to the members of this ancient and learned society, it is a comfort which I apply to myself when I remember that I am a bureaucrat, an official and worst of all—a politician, and that Dr. Annandale has just expressed a healthy detestation of all such people. Well, like the Asiatic Society the official and the politician are old enough to take care of themselves. Criticism is not new in their experience and it has never done them any harm. Professors and politicians do not often have a very good opinion of each other, but as Dr. Annandale is not a typical professor, and as I do not regard myself as a typical politician, we are not likely to quarrel, and the Asiatic Society of Bengal affords a most congenial atmosphere in which we can meet as intimate friends. I can say in all sincerity that I agree with the sound doctrines he has enunciated, and I would apply them to my calling as well as to his. The standard he has laid down for true scholarship is also the only standard for true statesmanship and if praise bestowed on research, "for racial, political or official reasons is an insult to true learning," similar praise is equally insulting to true statesmanship.

Although he described himself as a "pessimist," I was glad to find a confident and hopeful note running through Dr. Annandale's address. The year which he has reviewed has been one of achievement in many directions. To begin with, the building which forms the headquarters of the society and in which we meet to-night, has been entirely renovated. The extensive repairs which have been undertaken will give it a new lease of life and it will require no further expenditure of any magnitude for another generation at the least. The opportunity has been taken to introduce various improvements which will result in making the pictures, books and manuscripts more easily accessible and at the same time more immune from the ravages of the climate. The operations have also

disclosed the fact that a large number of books require binding and attention. All this is a very positive achievement and the more creditable when we remember that Rs. 85,000 have been raised by the society without recourse to a public appeal. The achievement is one of which the society may justly be proud; for there are few societies in any country which could meet extraordinary expenditure of such a kind without their normal activities being at least temporarily obscured. It shows that the society has a real reverence for this building, which was erected by public subscription over a century ago on this land, presented by the Government of India, and which has been for so long the treasure house of the society's priceless possessions. Indeed, few learned bodies in any country possess a greater store of historical and artistic treasures, no other learned body in Asia possesses so valuable a library of books and manuscripts, and all these are possessions which can claim to be a national responsibility and not merely the private property of the society. You remember what Napoleon said in the presence of the Pyramids. I can say to you to-day almost in the same words—"Ladies and gentlemen, from these venerable walls 110 years of solid work and brilliant history look down upon us."

The second achievement is the reorganization which has been effected in the management of the society's affairs. The appointment as General Secretary of one who combines the practical capacities of a business man with the learning of a discriminating scholar is a great asset to the society and should have a far-reaching influence on its administration. The reorganization should result in a more economical use of the society's resources, the co-ordination of its various branches, and the consequent avoidance of wastage and overlapping. I trust that it will pave the way for increased activities and that, as a direct result, the valuable materials which the society possesses may become more readily available for the researches of its scholars.

Yet a third achievement has made the past year eventful and is one perhaps which marks another turning point in the history of the society. I refer to the number of the new members who have joined during the year. Although the total number of present members is only just above the average—as calculated throughout the history of the society—the number of new admissions during the past year was the largest recorded for the last ten years. This is a most encouraging sign, as it indicates a growing interest in the various subjects—embracing, as Sir William Jones declared, the whole realms of man and nature—in which the society's activities are exercised.

Such are the material achievements and progress of the society, although, of course, these achievements have a far

wider significance than their mere material aspect and give promise of a healthy mind developing within. The condition of a society such as this should be estimated primarily from the point of view of its intellectual development and the products of the year, but its material prosperity may be an indication of the spirit pervading the members.

Dr. Annandale has given us his appreciation of the year's work in this direction, and he has told us what he considers the main dangers to the advance of learning and the chief defects in the outlook and aims of many present day scholars. I trust that his criticism will fall on good soil, and that students and scholars will take to heart his admirable advice regarding the cultivation of soundness and restraint. The imagination is already there, and if supplemented by these other two qualities—but not otherwise—will give to Indian scholarship a special distinction. His address was full of suggestion, and I was specially interested in that part of it in which he characterised accuracy and comparison as the twin pillars of modern learning and said that real scholarship is the combination of the two.

So far we have had our eyes only on the past. Let us now look forward for a moment into the future. There appear to me to be two needs which require to be met. The first is an increase in the membership of the society, and in this connection let me say, for the benefit of many who might wish to become members, but are deterred by a diffidence as to their qualifications that the society is not confined to scholars and specialists. It will welcome all who are interested in any branch of learning and willing to encourage the work of others. Just as literature could not flourish if it were confined to writers and there were no readers, so scholarship and research cannot live without the encouragement of those who are enriched by such activities. Increased membership will enable the society to extend its operations in many directions and though there may be no men of leisure in Calcutta—even the busiest men have some leisure—and I hope they will not grudge a part of it to the utilization of the society's scientific and artistic resources and adding to its utility by joining it as members.

The second need of the society is to preserve and to display to the best advantage its valuable treasures. This will require additional funds, and unless the increase in your membership provides you with sufficient income, some appeal to the public may be necessary. I have already told Dr. Annandale that though I cannot constitute myself the chief beggar on your behalf, I shall be glad to consult with the members of your Council as to the best means of obtaining the funds that you require.

Let me say, in conclusion, that I am very honoured to be

the patron of a society of which Warren Hastings was the first patron, which provides for the contact of such diverse races and which provides a common interest to men of all nations. The personnel of the Council indicates the variety of races which combine together here in the cause of learning; and we have heard of the contribution which has been made during the year by Mr. Ivanow, a Russian.

The society is the oldest of its kind in the world, and is held in the highest esteem by the scholars of the West. The Royal Asiatic Society in London is really an offshoot of this society and was founded a generation later as the result of the endeavours of men who returned to London from Bengal 100 years ago, inspired by the work of the Asiatic Society in Bengal and determined to form a similar society in England. Calcutta is marked out as the meeting ground in the East for scholars and artists in all branches of literature and science, and it is the most favourable nursery for the pursuit of oriental learning. I trust that its value, its prestige, its traditions, will receive increasing appreciation from all those who are interested in the promotion of learning.

Officers and Members of Council.

of the Asiatic Society of Bengal for 1924, as elected and announced in the Annual Meeting, February 6th, 1924.

President.

Sir Rajendra Nath Mookerjee, K.C.I.E., K.C.V.O.

Vice-Presidents.

The Hon'ble Justice Sir Asutosh Mukhopādhyāya, Kt., C.S.I.,
D.L., D.Sc., F.R.H.S., F.R.S.E., F.R.A.S., F.A.S.B.
Mahāmahopādhyāya Haraprasād Shāstri, C.I.E., M.A., F.A.S.B.
Professor P. J. Brühl, I.C.S., D.Sc., F.C.S., F.G.S., F.A.S.B.
Major R. Knowles, I.M.S.

Secretaries and Treasurer

General Secretary :—Johan van Manen, Esq.
Treasurer :—Professor C. V. Raman, Esq., M.A., D.Sc.
Philological Secretary :—Professor D. R. Bhandarkar, Esq.,
M.A., Ph.D., F.A.S.B.
Joint Philological Secretary :—A. F. M. Abdul Ali, Esq., M.A.
Natural History Secretaries { Biology :—Baini Prashad, Esq., D.Sc.,
Physical Science :—W. A. K. Christie, Esq.,
B.Sc., Ph.D., F.R.G.S., F.A.S.B.
Anthropological Secretary :—N. Annandale, Esq., C.I.E., D.Sc.,
F.R.S.E., C.M.Z.S., F.L.S., F.A.S.B.
Medical Secretary :—Major R. Knowles, I.M.S.
Library Secretary :—Pramatha Nath Banerjee, Esq., M.A.,
B.L.

Other Members of Council.

Rai Upendra Nath Brahmachari, Bahadur, M.D., M.A., Ph.D.,
F.A.S.B.
S. A. Khuda Bukhsh, Esq., M.A., B.C.L., F.A.S.B.
P. C. Mahalanobis, Esq., M.A., B.Sc.
E. H. Pascoe, Esq., D.Sc., F.A.S.B.
C. W. Gurner, Esq., B.A., I.C.S.
K. N. Dikshit, Esq., M.A.

EXHIBITION ANNUAL MEETING.

LIST OF EXHIBITS SHOWN AFTER THE ANNUAL MEETING OF THE ASIATIC SOCIETY OF BENGAL, ON THE 6TH FEBRUARY, 1924.

1. *Typical series of Tibetan Images.*—THE GENERAL SECRETARY.

This small collection illustrates variety in subject, treatment material and period.

- (1) Gautama Buddha, bronze.
- (2) Aparimitāyus or Amitāyus, stone, God of Life, a Dhyāni-buddha.
- (3) Mañjushrī, God of Wisdom, Bodhisatva, gilt copper.
- (4) Vajrapāṇi, wood. (Compare No. 7.)
- (5) Dharmatā, Sthavira, terracotta. (Inscription.)
Made in China for Lamaistic use.
- (6) Amoghasiddha, one of the 84 Siddhas, bronze. (Inscription.)
- (7) Guhyaka, mystery-God.
(Pre-Buddhistic Bon religion, equivalent to Buddhist Vajrapāṇi, No. 4.)

2. *Exhibits from Dr. Stella Kramrisch.*

- (1) Head (of Siva ?) from Mathura, Sandstone, 10th century, nose and left ear mutilated.

Remarkable for softness of modelling and expression. The eyes, although the pupils are not marked, have the downcast glance of meditation effected by the shadow of the deep cut underlining the elongated eyes. The eye-brows, highly conventional, and the mouth, sensuous in its fulness, are characteristic for the medieval school of Mathura.

- (2) Head of Kali, copper-mask, South-Indian, 19th century.

The broadly summarized features of the cruel face (notice the two tusks) are set off against the elaborate precision of the headdress and flame-halo. The highly embossed snakes and birds denote the late date of the head.

3. *Persian and Arabic Manuscripts in the collections of the Asiatic Society of Bengal.*—Selected by MR. W. IVANOW.

This small series of Persian and Arabic MSS. is intended to give a general idea of the evolution of Muhammadan calligraphy during the last eight centuries, chiefly as represented by specimens taken at random from the Eastern half of the Muslim world. The art attains its culmination of artistic perfection towards the end of the XVc. and the beginning of the XVIc., at Herat, at the courts of the successors of Tamerlan. After that time it gradually deteriorates and nowadays, with the progress of printing, it may be regarded as one of the lost arts of the past.

List of MSS. exhibited :—

| | A.H./A.D. | | |
|-----|------------|-----------------|----------|
| 1. | 515/1121. | Cairo. | Arabic. |
| 2. | 627/1230. | Damascus. | Arabic. |
| 3. | 676/1277. | (Samarqand.) | Arabic. |
| 4. | 685/1236. | (Bukhārā.) | Persian. |
| 5. | 703/1303. | (Khorasan ?) | Arabic. |
| 6. | 739/1339. | (Mesopotamia ?) | Arabic. |
| 7. | 809/1406. | Tabrīz. | Arabic. |
| 8. | 882/1477. | (India.) | Persian. |
| 9. | 885/1480. | (Turkestan.) | Persian. |
| 10. | 901/1495. | (Herat). | Persian. |
| 11. | 935/1529. | Bukhārā. | Persian. |
| 12. | 989/1581. | Bijāpūr. | Persian. |
| 13. | 1022/1614. | Golkonda. | Persian. |
| 14. | 1079/1669. | Meshhed. | Persian. |
| 15. | 1146/1734. | Arkāt. | Persian. |
| 16. | 1151/1739. | Haydarābād. | Persian. |

4. *Specimens exhibited by the Zoological Survey of India.*

Snails and Crabs which spread Disease in Man and Domestic Animals.

The snails, which are found in almost all parts of the world, are the hosts of an intermediate stage in the complicated life-history of various flukes, which in their adult stage live as parasites in the bodies of men or animals. Many flukes gain access to their final host from water by being swallowed or by boring through the skin, but others pass into crabs or other animals before reaching this host.

New and Interesting Animals.

Recently captured by the officers of the pilot vessels at the mouth of the River Hughli.

Animals from the Caves of Assam and Burma.

Cave animals, generally speaking, are remarkable for three characteristics :—

- (1) Pale coloration.
- (2) Degenerate eyes.
- (3) The possession of long, thread-like organs of touch.

In these respects the Indian cave animals are less remarkable than those of Europe or America, but most of them are paler than their relations which live outside, a few have reduced eyes and many have long feelers.

5. *Copper-plate Grant.*—Prof. D. R. BHANDARKAR.

King: Vijayāditya Satyāśraya of the early Chālukya dynasty.

Date: Śaka 626 = 704 A.D.

Records a grant of land to a Brahman.

6. *Exhibits from the Archæological Section of the Indian Museum from among Acquisitions of the year 1921-24.*—RAMAPRĀSAD CHANDA, Esq., Superintendent, Archæological Section, Indian Museum.

- (1) N.S. 4214, 4228, 4232, 4234.
Neolithic objects found in the Pakokku District, Upper Burma. Presented by Mr. K. A. K. Hallows, Geological Survey of India.
- (2) N.S. 4235, 4237, 4239.
Neolithic stone-axes found at Vaidyapur, Mayurbhanj State, Orissa. Presented by Babu Paramananda Acharya. N.S. 4237 is a new type.
- (3) N.S. 4193.
Harappa Seal (original on loan from the Director General of Archaeology in India) bearing ancient Indian picture writing.
- (4) N.S. 4194-4195.
Casts of two other Harappa Seals. Excavated by Rai Bahadur Dayaram Sahni, Superintendent of Archaeology, in 1921.
Harappa is a village on the old bed of the Ravi in the Montgomery District, Punjab.
- (5) N.S. 4192.
Bodhisattva Avalokitesvara from Rajgir in Bihar. Presented by Babu Mrinalkanti Bagchi.
- (6) N.S. 4201.
Bodhisattva Manjusri found in a field near Jamalpur in the Monghyr District, Bihar.
- (7) N.S. 4167.
Astrolabe made in 1015 A.H. (A.D. 1638-39) by Muḥammad Muqīm, son of 'Isā, son of Ilaḥdād Ustrulābī Humāyūnī Lahori. From Benares.

7. *Eight Dutch Tiles about 200 years old from the ruins of an old Indian palace.*—MISS B. M. COOPER, A.R.D.S.

These tiles were taken from the old palace at Murshidabad where similar ones completely covered the walls of a room in the palace which is now in ruins, having been destroyed by an earthquake about 25 years ago.

The tiles are said to have been given, in part-payment of a debt by the Dutch to Jagat Sett "the Rothschild of his time" who lent large sums of money to the early Dutch settlers about 200 years ago.

8. *A wooden board used by the Khasis for the sedentary game known as Māwkārkātiya*—H. C. DAS-GUPTA, M.A., F.G.S.

In several parts of India there is a type of sedentary game which is played on a wooden board in which a number of shallow holes has been scooped out, which holes are filled up with a fixed number of small pieces of stone, cowries, tamarind seeds, etc. These pieces are moved by the players according to certain definite rules. Different rules are observed in different parts of the country and the game is known as *Māwkārkātiya* (among the Khasis), *Vai lung thlan* (among the Lushais), *Kānji-guti* (among the Ooriyas), *Oman-gunta pēta* (among the Telugu-speaking people) and *Palanguli* (among the Tamil-speaking people). In Mysore there are three different varieties of this type of game. No trace of this type of game has been found in Bengal, Behar, the U.P. and the Punjab.

9. *Seylla serrata, Fosskāl, from the Miocene beds of Hathab, Bhavanagar State, Kathiawar.*—H. C. DAS-GUPTA, M.A., F.G.S.

The common Indian edible crab (*Seylla serrata*, Fosskāl) has been known, for a long time, to occur in a fossil state and the first notice about the fossil was published in 1767. In spite of the early date of the find of the fossil, information about the age

and the locality of the beds in which the fossil occurs is extremely vague. The fossil crab exhibited has been identified as *Scylla serrata*, Fosskål. It has been obtained from Hathab, Bhavanagar State, Ka'hiawar. The age of the beds is Miocene.

10. *Firman of Emperor Shahjahan granting a jagir. Dated 1642 A.D.*—KHAN BAHADUR S. A. LATIF (Asst. Secy. to the Government of Bengal).

11. *Exhibited by the Geological Survey of India.*

(1) Microspectroscopic demonstration of the absorption bands of Indian monazite with Dydimium absorption bands in comparator

(2) A thin section of a pyroxenite between crossed nicols with a reproduction of a direct colour photograph, to show the perfection of colour representation attainable.

(3) Sillimanite from Assam with a refractory crucible made from similar material.

(4) Topaz from Burma.

(5) An Indian meteorite.

(6) A map showing the distribution of Palaeolithic and Neolithic Implements in India, prepared by Dr. J. Coggin Brown

12. *Exhibited by A. F. M. Abdul Ali, Esq., M.A., Imperial Records Department*

(1) Treaty with King Christian VIII of Denmark for the transfer of the Danish Settlements in India to the English, dated 22nd February, 1845.

(2) Lahore seals and roll of their impressions. These belonged to Raja Ranjit Singh, his sons and officers, and are 19 in number.

(3) Timur's sword with the following inscription in Persian :—

“In the name of God the compassionate and merciful. The hand of God is above ‘their hands.’ The irresistible sword, the enemy-killer, the victorious, the sword of the king of kings, the monarch of monarchs, the Sultan Sahib Qiran His Majesty Amir Timur. May God perpetuate his Kingdom and Empire.”

(4) Album of the portraits of the Moghul Emperor and other scions of the House of Timur, beginning from Timur to Baha-dur Shah II. the last Moghul Emperor of Delhi.

(5) Quran on a scroll of paper.

A unique copy of the Quran, designed for the use of Shias, written on a scroll of paper about 19½ feet long, and only 3 inches wide. The calligraphy is of the highest order: though ornamental it is simplicity itself. The Durud, invoking God's blessings on the twelve Imams, runs straight through the scroll, and within the outlines of the comparatively large letter of this Durud is written in microscopic miniature the whole of the Quran, making it a marvellous piece of penmanship. The scroll was designed apparently for being used as a charm encased in silver or gold inside the headdress of the wearer.

- (6) This illuminated manuscript contains what is popularly known as the *Panjsura*, five chapters from the Quran.

The words of the text are artistically written in a way that they are divided into 6 by 4 square spaces on a page and the lines composing the squares are the parts of the letters that constitute the words. The vowel-points are marked red.

- (7) Another copy of the same, on a smaller scale.
(8) Yet another copy of the same on a still smaller scale.
(9) Agreement.

Entered into between a man named Sonatan Dutt of pargana Mymensingh and Rameswar Mitter to the effect that the aforesaid Sonatan Dutt being driven to starvation from famine and having incurred debts, undertakes along with his wife to serve the said Rameswar Mitter for a period of 70 years. Should he or his wife run away the offender would be liable to be seized and punished. Bears the seal of Qazi Md. Afzal. Thirty-ninth year of the reign of the Emperor Alamgir (1697 A.D.), B.S. 1101.

13. *Exhibited by Miss M. L. Cleghorn, F.L.S., F.Z.S.*

- (1) Living specimens of a rare Indian Toad (*Kaloula pulchra*, Gray), captured in the outskirts of Calcutta.

Specimen preserved in alcohol of the same species, captured at Alipore, Calcutta, in March, 1916, having lived for over seven years in captivity.

- (2) Specimens and drawing of the parasitic silkworm fly (*Trycolyga Bombyxis*, Becher).

(a) Specimen of fly and puparium.

(b) Drawings from life illustrating development of the parasite.

The gravity of the ravages of this parasite fly appears to have been overlooked in the silk districts. A knowledge, however, of its life-history enables the maggot to be found and destroyed before it becomes a fly and starts on its fresh cycle of destruction.

- (3) Specimen and photographs of a new "green" (albino) strain of an Indian Race of Mulberry silkworm.

Naturally very resistant to disease infection, producing white cocoons which yield more reelable silk per unit than other much larger cocoons. It is also quick maturing; so produces an extra crop of silk every year. It resembles the small white cocoon races of Japan.

- (4) Some new sub-varieties of Indian Mulberry (*Morus Indica*) of economic value in connection with the silk industry.

(a) Mulberry, producing relatively more leaf than stem, giving 33 per cent. more leaf than the common Indian Mulberry cultivated in the silk districts of Bengal.

(b) Very early budding strain.

14. *Nature Photographs* — SATYA CHURN LAW, M.A., B.L., F.Z.S., M.B.O.U.

"Bird-life through a Camera." An attempt to record with the help of a Camera the habits and haunts of some Indian birds in nature. Nature-photography in respect of *ornitho-*

logical studies in India has hardly had many votaries, perhaps because of its inherent difficulties.

The exhibits represent, among others, the following: Nests of Sun-birds, nest and nestlings of the Paradise Fly-Catcher, Sea-gulls in flight, Grey Partridge with chicks, Weaver-bird's nest, Flamingo, Pelican, Wild Ducks, Vultures and their roost, the House-crow, Common Mynah, the Ashy-crowned Finch-lark, Hawk-Cuckoo, the Brahminy-Kite, Blossom-headed Parrot, the Indian Silver-bill, the Bulbul, etc., etc.

15. *Current Publications of the Asiatic Society of Bengal.*—
The GENERAL SECRETARY.

(1) The Office file-copy of the Bibliotheca Indica, 1900-1924.

(2) Publications of 1923 :—

- (a) Bibliotheca Indica.
- (b) Catalogues.
- (c) Miscellaneous.
- (d) Journal.
- (e) Memoirs.

(3) Publications in the Press, incomplete advance copies, and books in the making.

(4) Price-lists and notices.

16. *Exhibited by Baron H. Rüd't Von Collenberg.*

(1) Two embossed plaques of old Murshidabad metal work, depicting :

- (a) The Gostha-lila : Radha and Krishna under a Kadamba tree ; the Yamuna in the foreground.
- (b) Gupta-lila : Krishna and Balarama with other cowherds in the grazing field. The Yamuna in the foreground.

(2) Three portrait panels, representing Emperors of Delhi, with calligraphic and ornamental border decoration.

- (a) Nasir-ud-din Muhammad Humayun, 913-963 A.H.
- (b) Jalal-ud-din Farrukh Siyar, 1095-1131 A.H.
- (c) Aziz-ud-din Alamgir II, 1099-1173 A.H.

17. *Tibetan Sin-destroyer.*—O. C. GANGULY, Esq.

The Tibetan name for this spirit is *za-byed mkhah-hgro*, which corresponds to a Sanskrit *khādaka-dāka*. "eat-demon." The name and form are probably due to puns on (or mistakes in) the etymology of the syllables *khā* (mouth, orifice) and *daka* in the first word, for *dāka*, an artificial masculine form of *dākinī*. The instrument is used for burning up til-seeds over which a lama has muttered appropriate spells by which he effects that his client's sins are transferred into the seeds which are then burnt in the pot, the smoke escaping through the gaping mouth. *khā*. A kind of vegetable scape-goat cum burnt-offering.

18. *Rare Manuscripts and Books from the Imperial Library*—
J. A. CHAPMAN, Esq., Imperial Library.

- (1) Copies of letters from Sir John Malcolm, 1803-6.
- (2) The Oude question—Charge against Marquis of Wellesley, 1805.
- (3) *Mir'āt-i-Jahān-Numā.*
- (4) *Ta'rikh-i-Fūz-i-Shāhi.*
- (5) *Ta'rikh-i-Shāhanshāhi.*
- (6) Autograph letter of Maharani Bhawani of Natore.
- (7) Autograph letter of Maharaja Nanda Kumar.
- (8) A Deed of a widow who sold herself during the Great Famine of Bengal, 1770.
- (9) Bolāqi Das—*Muraqqā'-i-Jahān-Numā. Printed.*
- (10) Halhed (N.B.) A Grammar of the Bengali Language, 1778. *Printed.*

19. *Exhibited by Braja Lal Mukherjee, Esq.,—Collection of Implements used in Vedic Agnisthoma Ritual.*

ANNUAL REPORT FOR 1923.

The Council of the Asiatic Society of Bengal has the honour to submit the following report on the state of the Society's affairs during the year ending 31st December, 1923.

Ordinary Members.

The number of Ordinary Members at the close of 1923 appears to be 355 as against 369 at the close of 1922. The number of Members elected during 1923 was 38, of whom 13 had not yet taken up their Membership at the close of the year. The number of Members actually added was therefore 25. Against these 27 were written off on account of retirement (though several of them had retired during the previous year) and 5 whose deaths were reported. The name of one Member was removed from the list under Rule 38 and the names of six Members under Rule 40. There was, therefore, a net decrease in membership of 14. The loss for the year as shown, is however, fictitious. Of late years the membership statistics have been badly kept and a complete check and consequent revision of the registers is needed. This work could not be undertaken during the year under review and will incidentally demand the introduction of a better method of keeping our registers than the old haphazard one. It is intended to see to this important detail during the current year and to put this branch of our administration on a satisfactory basis. In the circumstances it would be misleading to include in the present report statistics concerning our membership under the usual headings, for the present and previous years. If by the time this report is printed, the totals can be reliably worked out, they will be added as an appendix, otherwise the matter has to stand over till next year.¹

In the list of members following this report the changes in membership are shown under various headings. It may interest the Members to know that the total number of Ordinary Members, according to the data of our Annual Reports for the last 50 years, works out at an average of 349 annually. The flux and reflux of our popularity have moved in regular curves.

¹ A subsequent close check of the registers has slightly modified the totals. The grand total for 1922 was given apparently as 10 higher than should have been. The totals of gains and losses as given above for 1923 also need correction. The present results of re-calculation are shown in Appendix I, at the end of the Report. In this table the numbers up to 1922 contain an accumulated error of 5 in excess of the final total.
GEN. SEC.

From 1874, when we had 346 members, there has been a regular decrease till 1897 with its lowest point of 288 members. Then a regular increase began which lasted to 1911 when we had 519 members, the highest number we have ever had. This was followed by a regular decrease till the present year where, with our 355 members, we practically touch the 50 years' average of 349 and stand almost exactly where we stood 50 years ago. The years 1874 to 1904 were below the average, the years 1905 to 1923 above it, but in the present year we have reached the lowest possible point in the downward curve at which it is still positive, and any further decrease would change it into a negative one. There is a lesson here.

A few facts should be stated to show that, nevertheless, the situation does not call for pessimism. The large number of resignations recorded this year is partly due to the belated entry of some of last year's resignations. On the other hand the number of elections is the largest for over ten years. Signs are not wanting to indicate that with sustained endeavour and energy on the part of the Society the year under review may mark one of the periodical turning points in our long career.

Table showing totals of Ordinary Membership for 1874-1923.

| | | | | | | | | |
|------|----|-----|------|----|-----|------|-------------|-----|
| 1874 | .. | 346 | 1891 | .. | 295 | 1908 | .. | 448 |
| 1875 | .. | 345 | 1892 | .. | 310 | 1909 | .. | 473 |
| 1876 | .. | 347 | 1893 | .. | 308 | 1910 | .. | 508 |
| 1877 | .. | 345 | 1894 | .. | 295 | 1911 | .. | 519 |
| 1878 | .. | 327 | 1895 | .. | 297 | 1912 | .. | 517 |
| 1879 | .. | 329 | 1896 | .. | 294 | 1913 | .. | 499 |
| 1880 | .. | 356 | 1897 | .. | 288 | 1914 | .. | 473 |
| 1881 | .. | 350 | 1898 | .. | 300 | 1915 | .. | 445 |
| 1882 | .. | 337 | 1899 | .. | 301 | 1916 | .. | 407 |
| 1883 | .. | 323 | 1900 | .. | 311 | 1917 | .. | 378 |
| 1884 | .. | 326 | 1901 | .. | 328 | 1918 | .. | 381 |
| 1885 | .. | 330 | 1902 | .. | 334 | 1919 | .. | 371 |
| 1886 | .. | 319 | 1903 | .. | 335 | 1920 | .. | 368 |
| 1887 | .. | 313 | 1904 | .. | 343 | 1921 | .. | 359 |
| 1888 | .. | 305 | 1905 | .. | 357 | 1922 | .. | 369 |
| 1889 | .. | 307 | 1906 | .. | 407 | 1923 | 355 (= 345) | |
| 1890 | .. | 303 | 1907 | .. | 420 | | | |

Associate Members.

In 1923 no Associate Members were elected. We lost three by death, and their number now stands at 11. Statutory maximum 15.

Fellows.

Since the beginning of the year we have elected no Honorary Fellows.

Two Honorary Fellows died during the year :

Lieut.-Col. H. A. Godwin-Austen.

Prof. T. W. Rhys Davids.

Present number 28 ; statutory maximum 30.

At the Annual Meeting held on the 7th February, 1923, the following two members were elected Fellows of the Society :

S. Khuda Bukhsh, Esq., M.A., B.C.L.

Dr. G. N. Mookerjee.

During the year we lost the undermentioned Fellows :

By death—

Sir H. H. Hayden.

E. Vredenburg.

By retirement—

Lieut.-Col. A. T. Gage.

The number of Ordinary Fellows now stands at 37. Statutory maximum 50.

Special Honorary Centenary Members.

Of special Honorary Centenary Members only 2 still remain.

We have lost none in the year.

Office Bearers.

For the first time in many years there was no change in Office Bearers during the year, and except for a period of two months, when the Philological Secretary was absent from Calcutta and the General Secretary officiated for him, no special arrangements of the kind had to be made

Office.

The General Secretary performed the amalgamated duties of General Secretary and Assistant Secretary, and found it necessary to be daily in office every day of the year, all Sundays and holidays included, except for three days when he was out of Calcutta.

The old cashier, A. Dhar, handed in his resignation with effect from the 5th of July. He was given a gratuity of six months' salary in view of long service.

His place was taken by R. K. Iyer who had been appointed as an additional clerk on June 1st. The change has been satisfactory.

On July 11th the services of K. L. Das, typist, were dispensed with and on August 1st, Khagendra Nath Ghosh took his place.

On the 10th of July, S. K. Ray joined as an additional clerk.

In the subordinate staff some changes took place.

A serious handicap to a satisfactory performance of the work of the office was the abuse of the observance of holidays and in taking leave on the part of several members of the staff. This practice had established itself of late years as a tradition of the office. Reform in these two respects as well as in some others proved an urgent necessity.

Correspondence was attended to more completely than in 1922. The year began with masses of complaints in this respect, but these had almost completely ceased by the end of the year. Instead of 1,334 letters during the previous year, 3,214 letters were despatched during 1923. Even this left some correspondence inadequately attended to, but it was all the office could perform with one Secretary, one typist, and no stenographer. The fact has to be faced that at present the office cannot fully cope with its correspondence.

The archives and files of the office are in need of a complete overhauling and some of this work was intermittently performed, though its satisfactory completion would occupy a special clerk for the greater part of a year.

Mr. N. G. Majumdar, was appointed for the latter three months of the year to prepare descriptive lists and tables of the *Bibliotheca Indica*, and almost finished the work for the publications issued from 1900 to the present year.

Accommodation.

For a number of years one of the rooms on the ground floor of our building has been occupied by the Automobile Association of Bengal. By amicable arrangement with our former tenants we have now recovered the use of this room, which will be used for much-needed additional office-space in connection with our archives, editorial administration and book-sales department.

It is intended to effect a re-arrangement of the use of our various rooms during the present year and to set one room apart as a reading room for members.

Society's Premises and Property.

Under this heading the year proved the most important for decades. Early in the year the Council came to a decision as to the rebuilding plans which, for several years, had been under consideration. The first scheme, to pull down the existing building and to erect a new one, was definitely given up and after careful investigation of possibilities, requirements and costs, Messrs. Martin & Co. were entrusted with the work of renovation of the existing premises. Work was commenced in May and the operations were practically finished by the end of the year, leaving only residual operations of minor importance to be

completed in the beginning of the new year. Members present at the Annual meeting may judge of the results. The work done comprises the building of an entirely new roof over the central hall. On examination it was found that the old wooden beams (now replaced by steel girders) had rotted away to within a few inches of their supports on the walls. A new floor in patent stone was laid on the whole of the second story and steel sleepers were inserted in the North and South wings, so as to strengthen the floors in view of the contemplated future erection of two-storied steel-shelving in these rooms. The entire building was re-cemented, plastered, whitewashed and repainted within and without. All woodwork, window-frames and outside doors were renewed. Malthoid covering was installed on the roof. The central lower hall was wainscoted. The sanitary arrangements were remodelled, and extra provision made for the staff. The servants' quarters were renewed, two new lodges built, for a durwan and a sweeper, the drainage put on a satisfactory footing, the grounds raised and levelled, the whole building re-wired and the light and fan system revised on modern lines. The building is now guaranteed to be in first class order, able to last, with proper up-keep, for at least another generation, if not longer, and is so entirely renovated that citizens absent from Calcutta during the period of renewal have taken it for a new building. Internally, better arrangements have been made; ventilators have been installed in the library rooms and in some other places; a better disposition has been arrived at of the cases holding books or manuscripts, and an appreciable amount of space has been gained in the public rooms. Several bulky cases have been removed from places where they blocked light and air, and for the first time in many years every window and door in the building can perform its proper functions. Incidentally these improvements will, to a great extent, prevent the previous excessive dampness on the ground floor of which formerly books and bindings have been the victims.

All this has been done, moreover, with due respect to our venerable building. The total estimated cost of all these operations is in the neighbourhood of Rs. 85,000, which is covered by the capital available for the purpose in the Building Fund. The Society owes its thanks to Messrs Martin & Co., who, in conjunction with Messrs. The English Electric Co. (electrical work), Messrs. Norton & Co. (sanitary and drainage work), and the Bengal Patent Stone Co. (flooring work), have performed their task with entirely satisfactory results.

Artistic and Historical Possessions.

During the year a small sub-committee was instituted to examine our possessions, with a view to select suitable

items for display and make the necessary arrangements in this connection. The Committee have divided their labours and hope to formulate proposals during the present year. In the meantime Mr. Percy Brown and Mr. J. P. Gangoly have undertaken to examine and to re-arrange the hanging of our pictures, which work is now provisionally completed with most satisfactory results. The Council wish to record their thanks to Mr. Brown and Mr. Gangoly for their valuable help.

Sir Rajendra Nath Mookerjee has, in this connection, presented to the Society a marble pedestal for the bronze bust of Csoma de Körös presented by the Royal Hungarian Academy. The Council put on record their grateful thanks for this valuable gift.

Indian Museum.

During the year there has been no change in the Society's Trusteeship, the Hon'ble Justice Sir Asutosh Mukhopadhyaya continuing to be the Society's representative on the Board of Trustees under the Indian Museum Act X of 1910.

Indian Science Congress.

The Tenth Annual Meeting of the Indian Science Congress was held in Lucknow, from January 8th to 13th, 1923, under the patronage of His Excellency Sir William Marris, K.C.S.I., K.C.I.E., Governor of the United Provinces. Sir M. Visvesvaraya, K.C.I.E., M. Inst. C.E., D.Sc., was President. The Proceedings of the Ninth Congress, held at Madras, were published in June, as part of the *Journal and Proceedings* of the Asiatic Society of Bengal. This year the issue was treated as a separate appendix, with its own title page, page numbering and detailed list of contents and index. The report, which has been increasing in bulk year after year, covered this year over 200 pages print. The Council of the Society have decided to continue the publication for the Tenth Congress in the same size and style, but, in view of its bulk, to make it an altogether independent publication. Members of the Asiatic Society will continue to have a right to receipt of a free copy on application. Strenuous endeavours were made to issue the Proceedings of the Tenth Congress in 1923, before the meeting of the Eleventh Congress in Bangalore, but this has not proved possible. However, by the end of the year the larger part of these Proceedings had been printed off and they should be available for despatch early in 1924. It is hoped that the Proceedings of the 1924 (Bangalore) Congress will appear during the current year. All arrears in publication will then have been made good.

It may prove necessary in future to fix the final time limit for the acceptance of papers somewhat earlier than in previous

years, as the excessive pressure on the press for Science Congress work during the last months of the year has a serious effect on the work which has to be carried out for the Asiatic Society in connection with its Annual Meeting and the printing incidental to the completion of its financial year.

The Honorary General Secretaries of the Congress during the year were Dr. J. L. Simonsen, F.I.C., F.A.S.B., and Professor C. V. Raman, M.A., D.Sc.

The general administration of the Congress, when not in Session, was, as hitherto, attended to by the office of the Asiatic Society of Bengal.

Meetings.

The General Meetings of the Society were held regularly every month, with the exception of the recess months of September and October.

In June, July, August and November the meetings took place in the Museum House, the residence of the President, Dr. Annandale, as the Society's rooms were in the hands of the builders. In December the first meeting was again held in the Society's rooms, now entirely renovated.

A feature of this year's General Meetings was the informal exhibition of objects of interest from time to time, after the reading of papers.

As arranged in 1922 the meetings were convened for 6-15 P.M., and the increase in attendance was maintained.

Meetings of the Medical Section were held in the months of February, March, April, May, September, October and December. In September and October the meetings were held in the Calcutta School of Tropical Medicine. The number of visitors present was large throughout and reached a record in September, with 68 names registered.

Deputations.

The Society received an invitation from the Royal Asiatic Society of Great Britain and Ireland, to be represented at the celebration, in London, of the Society's Centenary, on Tuesday, the 17th July.

The Council invited two of its Fellows, Sir Thomas Holland and Lieut.-Col. D. C. Phillott, residing in England, to represent the Asiatic Society of Bengal at the meeting. Sir Thomas Holland found it possible to accept the invitation, whilst Lieut.-Col. Phillott, to the Council's regret, found himself unavoidably prevented from being present. Sir Thomas Holland invited Sir Rajendra Nath Mookerjee, Member of Council of the Asiatic Society, who happened to be present in London at the date fixed, to associate himself with him,

and the Council feels gratified that the President Elect for the present year should have been able to share in the representation of the Society at the historic meeting. Sir Thomas Holland read a felicitious address at the meeting and made some further appropriate remarks at the centenary dinner on July 20th, 1923. The text of his address and speech, together with Sir Thomas' report concerning his representation, will be published separately in the Proceedings.

An invitation from a number of associated learned bodies in the United States of America, requesting the Asiatic Society to be represented at a meeting in Philadelphia, on September 9th, 1923, in memory of the centenary of the birth of Joseph Leidy, could not be accepted as no representative could arrange to be present, and it was resolved to send a suitable written address.

An invitation from the Secretaries of the Reception Committee of the Bangiya Sahitya Sammilan, that the Society be represented at the meeting at Shastri Lodge, Naihati, on June 23rd and 24th, was received, and Vice-President Mahamahopadhyaya Haraprasad Shastri was invited to represent the Society. He accepted the invitation.

Agencies.

Messrs. Luzac & Co., in London, M. Paul Geuthner, in Paris, and Herr O. Harrassowitz, in Leipzig, continued to act as our European Agents. An appreciable amount of book-sales was effected through them and the endeavours of the Society's Office to reform and improve its business methods were several times referred to with evident appreciation in their correspondence. The accountancy with our Agents, however, had been allowed to fall into arrears owing to previous slackness on the part of our office. It is hoped that the coming year will allow this matter also to be put straight. The activity and co-operation of our Agents left nothing to be desired.

Barclay Memorial Medal.

Consideration of an award for 1923 was deferred to 1924.

Elliott Prize for Scientific Research.

The subject selected for the Elliott Prize for Scientific Research for the year 1923, was Chemistry, and the notification appeared in the *Calcutta Gazette* in the beginning of 1923. Papers were received from four competitors, one of whom was disqualified as his paper was not in accordance with the terms of the *Gazette* notification. The Prize is awarded to Mr. Bhailal M. Amin, B.A., First Assistant to the Indigo Research Chemist, Pusa.

The subject for the Prize for the year 1924 is Physics. The notification will shortly be published in the *Calcutta Gazette*.

Finance.

Appendix III contains the usual statements showing our accounts for the year 1923. In this year's account there still occurs the additional statement under the head "Catalogue of Scientific Serial Publications, Calcutta," though this publication is now discontinued and the account has to be closed.

There is an additional statement (No. 14) under the head "Akbar Nama reprint." This represents a sum ear-marked for reprint of Vol. I of Blochmann's translation of the Akbar Nama. The reprint will be made in England under the immediate supervision of the Editor, Lieut.-Col. Phillott. The sum has been drawn from Oriental Publication Fund, No. 2.

Statement No. 21 shows the Balance Sheet of the Society and of the different funds administered through it.

The credit balance at the close of the year is Rs. 2,17,731-15-10 against Rs. 2,13,868-3-7 at 31st December, 1922. Of this amount Rs. 1,73,200 belongs to the Permanent Reserve, the working balance, exclusive of funds administered for Government being Rs. 44,531-15-10 as against Rs. 41,568 at the end of 1922.

The Society has received the usual sanctioned grants from the Government of Bengal and India respectively as under:—

| From Government of Bengal— | | Rs. <i>Vide</i> Statement | |
|---|-------|---------------------------|-------|
| Anthropological Fund | .. | 2,000 | No. 1 |
| Oriental Publication Fund, No. 1 | | 8,250 | „ 2 |
| Do. do. No. 2 | | 3,000 | „ 3 |
| Sanskrit MSS. Fund for printing, cataloguing and preservation of MSS. | | 3,600 | „ 4 |
| Total | .. | 16,850 | |

| From Government of India— | | Rs. <i>Vide</i> Statement | |
|------------------------------|--|---------------------------|-------|
| Arabic and Persian MSS. Fund | | 5,000 | No. 5 |

A grant of Rs. 3,200 for the publication of the descriptive catalogue of Sanskrit manuscripts prepared by M.M. Haraprasad Shastri was made after the close of the year, for a further period of five years, subject to the vote of the Legislative Council each year, and with effect from 1st April, 1923.

During the year under review the Society has opened up a new source of income by letting out space for advertisements on the frontage of its site. The measure was carefully considered by the Council and it was felt that the aesthetic objections should be overruled by the urgent necessity for a

sound financial position. It was found that the street frontage at the corner of Chowringhee and Park Street is one of exceptional value for advertisement purposes, and after a few months' experiment, contracts had been entered into bringing in a monthly rental of over Rs. 500 with scope for trebling this income in the future. Under the circumstance the Council did not feel justified in rejecting this means of strengthening its power to further the aims of the Society, resulting from the appreciable addition to its resources.

Statement No. 17 contains an account of the Society's investments in Government Securities, which are held in deposit by the Imperial Bank of India. We hold $3\frac{1}{2}$ Government Promissory Notes to the face value of Rs. 2,73,700. The actual cost of the securities was Rs. 2,62,606-3-10, but as the value of this security has considerably decreased during recent years, the book value this year has again been written down to the rates ruling at the close of the year, and this shows now a loss of Rs. 89,833-1-10. We also hold 4% Government Terminable Loan 1915-16 of Rs. 10,100 purchased at par which has fallen due during the year and the amount is now to be realised and reinvested or otherwise allocated, and the written value shows a loss of Rs. 25-4-0. In addition we have $3\frac{3}{4}$ % Government Promissory Notes of Rs. 500 belonging to the Barclay Memorial Fund and this paper also has been revalued.

Statement No. 9 shows the present position of our Building Fund. The cost of our re-building during the year, and the incidental other expenditure, will probably wipe out the total of our assets in this fund, but it is anticipated that there will be no great excess of expenditure over available resources under this head.

Statement No. 18 shows how the current funds are temporarily invested in War Bonds.

Statement No. 19 shows the Treasury Bills account. The amount realised on the Bills falling due has been kept liquid in view of payment to be made for the renovation of our building.

Statement No. 15 gives an account of the amount due to and from the Society by way of subscriptions, publications and contingent charges.

In Statement No. 16 is shown the sum reserved and kept in deposit with the Chartered Bank of India, Australia and China, London, for printing the Kashmiri Dictionary in London.

The Budget estimates for the year 1923 were: Receipts 29,489, Expenditure Rs. 23,340. The actual receipts are Rs. 31,009-6-10, including the "admission fees"; and the actual expenditure Rs. 25,829-10-7, including "Indexes" and "Gratuity" which were not at all, or not sufficiently, provided for in the Budget Estimate.

During the year we have received Rs. 800 from admission

fees and one member has compounded his subscription fees, and as usual the Permanent Reserve has been increased by Rs. 900 (face value) transferred from the Temporary Reserve. The Permanent Reserve now stands at Rs. 1,73,200 (face value).

The Budget Estimate for 1914 of probable Expenditure has been framed so as to meet a possible increase under various heads in view to active work in various departments during the year. The Receipts have been estimated at a minimum. If a larger amount is realised, a proportion of the available surplus will be devoted to an attempt at pulling up the arrears in the publication of the *Journal and Proceedings* which are at present a year, that is a full volume, behind time.

The Budget Estimate of probable Receipts and Expenditure for the year 1924 is as follows:—

| | | | | Rs. |
|-------------|----|----|----|--------|
| Receipts | .. | .. | .. | 30,300 |
| Expenditure | .. | .. | .. | 28,416 |

We therefore anticipate that even with continued strenuous activity and consequently increased expenditure no deficit need be apprehended for the ensuing year.

BUDGET ESTIMATE FOR 1924.

Receipts.

| | 1923. Estimate. | 1923. Actuals. | 1924. Estimate. |
|---|--------------------|-------------------|--------------------|
| | Rs. | Rs. | Rs. |
| Members' Subscriptions .. | 9,000 | 9,674 | 9,000 |
| Subscription to <i>Journal and Proceedings</i> .. | 3,162 | 2,022 | 2,000 |
| Sale of Publications .. | 1,700 | 830 | 1,000 |
| Interest on Investments .. | 12,927 | 12,925 | 12,500 |
| Rent .. | 600 | 1,150 | .. |
| Miscellaneous .. | 100 | 480 | 300 |
| Government Allowance .. | 2,000 | 2,000 | 2,000 |
| Admission Fees .. | .. | 800 | .. |
| Compounded Subscriptions .. | .. | 100 | .. |
| Advertisements .. | .. | 985 | 3,500 |
| Books .. | .. | 42 | .. |
| TOTAL .. | 29,489 | 31,009 | 30,300 |

Expenditure.

| Salaries .. | .. | 7,435 | 10,154 | 10,000 |
|------------------------|----|--------------|---------------|---------------|
| Commission .. | .. | 600 | 450 | 400 |
| Stationery .. | .. | 125 | 283 | 300 |
| Carried over .. | .. | 8,160 | 10,887 | 10,700 |

| | 1023. Estimate. | 1923. Actuals. | 1924. Estimate. |
|-----------------------------------|--------------------|-------------------|--------------------|
| | Rs. | Rs. | Rs. |
| Brought Forward .. | 8,160 | 10,887 | 10,700 |
| Pensions .. | 216 | 216 | 216 |
| Light, Fan and Telephone | 150 | 395 | 350 |
| Taxes .. | 1,495 | 1,495 | 2,500 |
| Postage .. | 1,000 | 1,099 | 1,200 |
| Freight .. | 150 | 51 | 150 |
| Contingencies .. | 400 | 701 | 600 |
| Books .. | 1,000 | 761 | 1,000 |
| Binding .. | 600 | 826 | 1,000 |
| <i>Journal and Proceedings</i> .. | 9,000 | 6,501 | 9,000 |
| Indexes .. | 200 | 1,072 | 200 |
| Printing .. | 200 | 504 | 500 |
| Auditing .. | 250 | 250 | 250 |
| Petty repairs .. | 50 | 61 | 250 |
| Insurance .. | 344 | 344 | 350 |
| Winter Clothing .. | 125 | 159 | 150 |
| Gratuities .. | .. | 502 | .. |
| TOTAL .. | 23,340 | 25,824 | 28,416 |

Library.

The building operations in progress for more than nine months, during the year under review, caused a complete upheaval in the Library. The contents of all rooms had to be moved about like pieces on a chess-board, from room to room, as the builders were engaged in them in turn. All shelves had to be emptied in batches and the books to be stacked in heaps, and these heaps had to be shifted several times from place to place. As a result it has come to light that for many years binding has not kept pace with accessions and that a very large proportion of our books has been left unbound.

This has caused great damage to such works, as even with the most careful handling possible in the circumstances, volumes have fallen to pieces, covers have been torn off, and some irreparable damage has been done. A rough estimate is that perhaps 10,000 volumes need binding and the question arises whether it is justifiable to continue to receive so large a surplus of books for the proper preservation of which provision is not made. It is a case of accumulated neglect for many years. The binding grants will have to be substantially increased in future years and a special grant will be necessary to save what is still to be saved.

A second result of this shifting has been to make it clear that not only a substantial increase in shelving is imperatively

demand, but that our present shelving is superannuated. All our shelving consists of old-fashioned almirahs with an enormous waste of space in the aggregate. The bottoms of our cases are too deep, the distances between the shelves too great, and their heights too small. What we need is a modern system of steel shelving which will allow us to store our book collections compactly, and with intermediate flooring, to double man's height. In that way all our possessions can be stored in our present two library wings.

In the meantime the present book-cases have been rearranged in a better way. All cases have been placed at right angles to the windows so that better lighting has been obtained and dark corners and places have been eliminated. At present all books can be seen on the shelves. The present rearrangement has also economised space better than before, and place for several cases has been gained in the library wings, whereas formerly the public rooms were crowded with shelving which now has been removed from them. The Librarian reports that for many years his urgent demands for new shelving have remained without response.

A system of fixed wire netting on the ground floor in existence before the present re-building made it previously impossible properly to ventilate the ground floor. This, coupled with the low level of our grounds (about a foot or two below street level), as well as with imperfect drainage and absence of any cement protection of the drain round the building, made the ground floor excessively damp, with the result that binding and paper of our books stored on the ground-floor have suffered badly. The removal of all wire-netting, the rearrangement of the drainage, the levelling of the grounds and the thorough cementing of the foot of the walls and the gutters, have made an enormous improvement, and intensive ventilation during the last months has already had a marked effect.

All books are now back on the shelves, but a careful check has to be made of the whole library with a view to correct placement within the book-cases.

The printed Library Catalogue has been long out of print. It was not only incomplete and imperfect, but as it dated from 1910, all accessions since that year have to be entered in the new edition which is urgently needed. The Library is one of the chief assets for our members and a great inducement to application for membership. An endeavour was made to compile a new catalogue and a special clerk was appointed. He proved a failure, and, realising this, resigned. It has not proven feasible to take further steps in this matter during the year.

In this connection industrious, perseverant and intelligent volunteer help from amongst our members is highly desirable. The President issued a circular calling for such help from re-

sident members, and in response some dozen offers of help have come in. After the annual meetings is over, actual work may be started on this undertaking. As the building work has been far more protracted than originally estimated, active steps could not be taken during the year.

The Library is very rich in rare works not to be found in other libraries in India, and contains the richest and oldest collection of academical and scientific periodicals in this country. Its efficient upkeep should form a very important part of the Society's activities.

The special circumstances described above caused that from time to time during the year books which were applied for could not be supplied for the moment, but on the whole the Library was kept going and only little inconvenience was caused to our members. The brunt of the difficulty was borne by the staff.

Publications.

Of the *Journal and Proceedings*, Volume XVIII (for 1922), eight numbers were published, Nos. 3-10, completing the volume and containing 714 pages print and 11 plates in all. This was about 250 pages more than the average for the last three years, and was only twice exceeded in the last ten years.

Also, title pages and indexes for the seven latest volumes were issued.

Of the *Memoirs*, only one number was published, No. 5 of Volume VII, containing 118 pages print but no plates, completing the volume. This was equal to the average of the previous three years, but below the average of the years before.

An attempt was made during the year to issue the separate numbers of the *Journal* as much as possible with homogeneous contents.

A Numismatic Supplement (No. 36) was issued, with separate paging and title pages.

The Proceedings of the Ninth Indian Science Congress were also issued with separate paging, and with title pages and a very full index and list of contents, making it a self-contained publication. Its bulk was greater than ever before and reached this year 210 pages print.

The prices of our publications were revised during the year and fixed at annas six per unit for the *Journal* and annas nine per unit for the *Memoirs*—a unit to be counted for each 16 pages or part of 16 pages text, and for each plate, map or table not in the text.

Old prices, as printed on the publications, and sterling equivalents were abolished with effect from May, 1923. A minimum price of Rs. 2-8 was fixed for loose copies of the *Journal*, Old Series.

A tabular statement is given in Appendix II.

Exchange of Publications.

During the year the Council accepted twelve applications for exchange of publications as follows :—

| | | |
|-----|--------------------------------------|-------------------|
| 1 | London, Geological Society : | Against |
| | Publications | Journal, Memoirs. |
| 2. | Bolpur, Shantiniketan : | |
| | Visva-Bharati Quarterly .. | Journal. |
| 3. | Tokyo, Natural Research Council : | |
| | Japanese Journal of Zoology | Journal, Memoirs |
| 4. | Peking, University | |
| | University Journal .. | Journal. |
| 5. | Zagreb : | |
| | Narodna Starina .. | Journal. |
| 6. | Bombay, K. R. Cama Institute: | |
| | Publications .. | Journal. |
| 7. | Hamburg, University : | |
| | Memoirs, Dissertations .. | Journal, Memoirs. |
| 8 | Poona, Oriental Research Institute : | |
| | Publications | Journal, Memoirs. |
| 9. | Batavia, Topographical Survey : | |
| | Reports | Journal, Memoirs. |
| 10. | Tashkent, State University Tur- | |
| | kistan : | |
| | Journal | Journal. |
| 11. | Bombay, Government Meteorolo- | |
| | gical Observatory : | |
| | Magnetic Records .. | Journal. |
| 12. | Berlin, Library Committee, Deut- | |
| | sche Wissenschaft : | |
| | Publications | Journal, Memoirs. |

Philology.

The Philological activities of the year, in so far as they are not described under other heads, are the philological papers published in the *Journal and Proceedings* and those read in the monthly meetings but not yet published. Of the eight numbers of the *Journal* published during the year, three were of purely philological contents. One contained the Numismatic Supplement, dealt with elsewhere; one was devoted to a single article on the Bibliography of Tibet, by Mr. van Manen; and one contained nine different papers of which two, on Father Monserrate, by the Rev. Fr. H. Hosten; three by W. Ivanow, on an old Gypsy-Darwish Jargon, the sources of Jami's Nafahat, and an Ismailitic Pedigree; and one each by: H. E. Stapleton, on Contributions to the History and Ethnology of North-Eastern India (the fourth in that series): by N. C. Chatterjee,

on Primogeniture in Ancient India; by H. C. Ray, on Lâla and by Haridas Mitra, on the newly discovered Bogra Stone.

In the remaining numbers of the Journal, of miscellaneous contents, were published articles by R. C. Majumdar on the dates of the votive inscriptions on the Stûpas at Sañchî; by Kumar Gangananda Sinha, on the Discovery of Bengali (?) dramas in Nepal; by H. C. Ray, on Madra; by Hemchandra Roy-Chaudhuri, on the Mahābhārata and the Besnagar Inscription of Heliodorus; by A. H. Harley on Dihyah al-Kalbî; by Kumar Gangananda Sinha, A Note on the Jāngala Desa; and by Baburam Saksena, on Lakhîmpuri, a dialect of Modern Awadhî. In the special Science Congress number there were a few abstracts which had some bearing on philology.

The only philological publication of the year in the *Memoirs* came from the pen of our veteran contributor, F. E. Pargiter, a Vocabulary of peculiar vernacular Bengali words.

Amongst the philological papers read in the monthly meetings and not yet published, there were several of interest: by Khan Sahib Abdul Walî (on various Mohammadan subjects); W. Ivanow (on the Society's Persian Manuscripts); Johan van Manen (on a verse in the Dhammapada, and on a character in the Tao Te King); R. C. Majumdar (on the date of the Khadga dynasty of Bengal); Y. R. Gupte (on a grant of the Vākātaka Queen Prabhāvatiguptā, 19th year of Pravarasena II); P. N. Misra (on Lakshman Samvat); H. C. Ray (allusions to Vāsudeva Krishna Devakîputra in Vedic Literature); Mesroby J. Seth (on a MS. Koran in classical Armenian); N. K. Majumdar (on the Siddhānta Śekhara of Śrîpati); Ramaprasad Chanda (on Professor Mazumdar and the dates of the Sañchî Inscriptions); Haridas Mitra (Epigraphic Notes); Kumar Gangananda Sinha (on some Maithili Dramas of the Seventeenth and Eighteenth centuries); B. M. Barua (on the identification of four Jātakas at Bharhut); Hem Chandra Ray (on Why did not Alexander Cross the Beas?); and some others.

Anthropology.

It is difficult to distribute some of the papers submitted to the Society between this section and that of philology, but only those which are of a strictly anthropological or ethnological character will be considered here.

A considerable number of abstracts of anthropological papers read at the Ninth Indian Science Congress was printed in the Indian Science Congress Number of Vol. XVIII of the Society's Journal and several of these papers have since been submitted for publication in full.

The only papers actually published have been Hem Chandra Das-Gupta's note on a supposed neolithic script and H. E. Stapleton's account of the origin of the Catholic Christians

of Bengal. The latter is the third of a series of papers by the same author on the History and Ethnology of North-Eastern India.

Papers read but not yet published include N. Annandale's account of mural paintings in an Uriya village and Mr. W. Ivanow's report on a Mediæval case of witchcraft in India. The former, which is profusely illustrated, will be published shortly in the Memoirs, the latter in the Journal of the Society.

Natural History.

Several papers on the results of the Percy Sladen Expedition to Yunnan in 1922 were read. Coggin Brown dealt with the general features of the country traversed, N. Annandale with eighteen species of land molluscs, B. Prashad with eight species of bivalve molluscs and S. W. Kemp with decapod crustacea; F. C. Frazer gave an account of a collection of nearly two hundred dragon-flies belonging to twenty-three species, mostly oriental, seven of them being new.

The aquatic gastropods collected by the Expedition were dealt with by N. Annandale, who pointed out the resemblances between them and those of certain tertiary beds of Central Europe and of the Shan plateau and arrived at the conclusion that the resemblances are due to convergent evolution; a new family, called *Delarayidae*, was defined. W. M. Tattersall gave an account of amphipodous crustacea gathered by the Expedition.

B. Prashad revised the nomenclature of the Indian Ampullariidae, whilst N. Annandale gave a summary of the advance in our knowledge of the Fauna of the fresh and brackish waters of India, a bibliography being added, worked out by Cedric Dover and referring to the papers on the subject published from 1912 to 1922.

An account was given by N. Annandale of the damage done to brick-work in the Calcutta Docks, the chief culprit being *Martesia fluminalis*, the burrows made by it being afterwards utilised by certain other bivalves.

The first instalment of a report on forty-eight species of fishes collected in a lagoon connected with the Gulf of Siam was presented by Sunder Lal Hora.

B. Prashad recounted the results of his investigations on the luminosity of some animals in the Gangetic Delta, finding that the luminosity of two species of Ctenophores is due to light-producing organs possessed by them, whilst in the case of a fish and a prawn the luminosity was ascribable to phosphorescent bacteria.

He also studied the subject of the respiration of the Ampullariidae with special reference to common peculiarities of the

hill-stream form of *Turbinicola saxe*a and discussed the probable causes of those peculiarities.

N. Annandale exhibited some recent and fossil shells as examples of parallel evolution in a family of water snails.

J. Coggin Brown exhibited and commented upon specimens of *Ostrea gryphoides* found in recent excavations in Calcutta, arriving at the conclusion that the finds do not produce new evidence for a former extension of the sea over the present site of Calcutta.

Certain peculiarities in the anatomy of two genera of Indian Cat-fishes were pointed out by Sat Kori Dutta.

C. Boden Kloss compared the type specimens of Blyth's Bulbul with specimens collected in North Cachar and considers the latter to constitute a sub-species.

R. Seymour Sewell gave a lecture, illustrated by photographs, on the formation and general topography of a typical coral island. He also presented a first instalment of series of papers on the structure, origin and various features of the Indian seas and islands.

Herbert C. Robinson and C. Boden Kloss published a criticism of C. Stuart Baker's first volume of the second edition of the "Fauna of British India: Birds," their paper including a list of what they consider necessary addenda and corrections.

Miss Maude L. Cleghorn contributed a paper on the flowers of the Mohwa (*Bassia latifolia*) which are remarkable for remaining closed, the pollen being shed through pore-like openings before the petals acquire a fleshy consistence attracting bats, which in this case effect pollination. The paper is of great interest by reason of its attracting attention to a rare type of floral mechanism and a rather uncommon agent in securing cross-pollination.

Paul Brühl and Kalipada Biswas read and published a note on a new species of *Cylindrospermum*, *C. doryphorum*, obtained from one of the Bengal filter-beds.

L. Dudley Stamp and L. Lord dealt with the inter-relationships between the geological features, the climate and the plant formations of a region extending on the banks of the Irawady between Prome and Yenangyoung. He distinguishes thirteen plant formations and believes that climate, especially the amount of rainfall, is the chief determining feature.

Physical Science.

S. C. Kar contributed a paper "On the Theory of Generalised Quanta and the Relativistic Newtonian Motion," in which he discussed the general theory of the quantic structure of phase-space with special reference to the particular cases of (i) the linear oscillator, (ii) the rotator, (iii) the ordinary

Newtonian ellipse and (iv) the relativistic Newtonian ellipse. The results deduced agree with those of Planck and Sommerfeld in the first three cases. The result obtained in the fourth case, however, differs from both. The consequences of this theory were compared with those of Sommerfeld's and with the observations of Paschen on the Balmer lines of hydrogen, and it is shewn that while the doublets and triplets receive no explanation, the behaviour of the Rydberg number may be regarded as equally satisfactory.

Nripendra Chandra Chatterjee in a short note gave a new method for the "Rationalisation of Algebraic Equations."

C. V. Raman in his paper on the "Viscosity of Liquids" has made an attempt to calculate the viscosity of liquids theoretically on the basis of the molecular hypothesis. In the paper on the "Molecular Anisotropy of Liquids" he has discussed the optical anisotropy of molecules in connection with experimental work on the scattering of light.

E. P. Harrison and Narendra Nath Sen have described "An Automatic 'make and break' Key for Actuating the Heating and High Potential Circuits of a Coolidge X-Ray Tube." By its use it is possible to run a Coolidge tube to carry a heavy current without attention for an indefinitely long time and with no risk of over-heating.

Hem Chandra Das-Gupta gave a note "On the Fossil Pectinidae" dealing with the palaeontology of Bhavnagar State in Kathiawar.

L. R. Rau has given a study of the fossils in the lowermost Uttatur deposits and has discussed their bearing on the question of the age of the Uttatur marine transgression.

Medicine.

Of the thirteen medical and surgical papers presented during the year, all have received publication or are pending publication, the majority of them in full in the *Indian Medical Gazette* or in the *Indian Journal of Medical Research*, a few of them as detailed abstracts in the former journal. Lieut.-Col. J. W. D. Megaw's paper on "The Epidemic Dropsy Problem" presents the case for regarding this disease as synonymous with beriberi, and incriminates diseased rice as the aetiological factor. The paper by Capt. G. Shanks on "The Agglutination Results in Cases of Enteric Fever Occurring in Inoculated Subjects" shews that, with the Dreyer technique and weekly examinations, agglutination due to the enteric fevers can be readily differentiated from that due to inoculation. Major A. D. Stewart, deals with "The Selection of a Disinfectant," and Dr. U. N. Brahmachari, with "The Excretion of Antimony." The paper by Major H. W. Acton and Ganapati Panja on "Leucoderma" was published as a précis in the

Indian Medical Gazette, and subsequently abstracted in the *Tropical Diseases' Bulletin* and in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*; the authors shew that this very common Indian condition is due, not to defective activity of the melanoblasts, but more probably to deficient supply to them of the basal amino acids from which the skin pigment is produced.

Major Acton's paper on "The Causation of Asthma and its Treatment" also deals with a common Indian disease; several factors peculiar to the tropics, such as amoebic lesions of the colon, may allow the passage into the circulation of the pressor bases which cause the asthmatic spasm. Major R. N. Chopra, and Dr. J. Borland McVail write on "The Therapeutics and Pharmacology of Carbon Tetrachloride," shewing experimentally that this drug is the most efficient anti-hookworm remedy at present known, that it should be administered with a subsequent saline purgative, but that it should be withheld in cases of defective hepatic function. Major Acton, in a paper whose publication is still pending, outlines in detail "The Treatment of Bacillary Dysentery," and Dr. Brahmachari, in a paper published in the *Indian Journal of Medical Research*, deals with "The Treatment of Cases of Kala Azar resistant to the Antimonyl Tartrates with Urea Stibamine, and the Value of Stibamine in Kala Azar."

Lieut.-Col. C. A. Gourlay, in a paper published in the January, 1924, number of the *Indian Medical Gazette*, "On Venereal Diseases among Indian Women," describes the difficulties encountered in India where patients leave hospital the moment symptoms are ameliorated and before cure is complete, and outlines the standard courses of treatment at the Alipore hospital. Major Acton's paper on "Some Rare Diseases of the Skin in the Tropics" deals with such conditions as von Recklinghausen's disease, adenoma sebaceum, trichoeplithelioma, epidermolysis bullosa, mycosis fungoides, scleroderma and elastic skin. Lieut.-Col. F. P. Connor in a paper whose publication is pending, deals with "Surgical Matters of Interest," including the position of intravenous iodine therapy in medical and surgical practice, and the problem of the ætiology of the common type of hydrocele met with in Bengal.

Catalogue of Sanskrit MSS.

Mahamahopadhyāya Haraprasad Shāstri's Descriptive Catalogue of Sanskrit Manuscripts in the Government Collection, has made substantial progress. This year the fruit was gathered of several previous years of laborious preparation and work. Volume II, describing the Vedic Manuscripts, was published, covering over 1,250 pages print, and describing over 1,700 MSS.

Volume IV, on history and geography, was also pub-

lished, describing a smaller collection of 55 MSS. in 138 pages print.

Volume III, on Smṛti, which is to describe fully 1,200 numbers, had been in hand for a long time in a press which could not do justice to the work with any speed. So the MS. was recalled and placed with the Baptist Mission Press, our regular printers. At the end of the year about 100 pages of this volume had been print-ordered, and the volume should be completed in 1924.

In all, the MS. of the descriptions of 6,000 further Sanskrit MSS. is ready for the press and can be printed off as quickly as our resources permit.

The Council passed a special vote of thanks to the Shāstri for his work on the Catalogue.

Arabic and Persian Manuscripts, Search and Catalogue.

During 1923 half a dozen Arabic and Persian MSS. were purchased on behalf of the Government Collection.

The activities in this department were, as far as the ordinary staff is concerned, limited to mere routine work, with no real output or result. Excessive absence on leave on the part of some of the members of the staff reduced results to a minimum. For a long time this department has been neglected and the time has come to completely re-organise it so as to make its existence profitable. It does not seem justified to continue applying part of the specific Government grants and of the Society's money in a way which can only be described as wasteful and useless. There is ample and important work to be done, but it can only be performed with proper direction, which for a long time has been lacking with reference to the work of the regular staff.

On the other hand important results have been achieved by W. Ivanow, who has been specially entrusted with the description of the Society's collection of Persian MSS. For a period of two years he has been engaged on the description of the collection, and early in 1923 the printing of this descriptive catalogue was begun. By the end of the year 560 pages had been printed off, containing the descriptions of 1,150 numbers. The work will probably be ready for issue by the middle of 1924 and will contain an estimated number of 1,800 notices, describing one of the world's important collections of Persian Manuscripts.

Bibliotheca Indica.

In the Bibliotheca Indica during the year under review twelve numbers were issued and half a dozen others were in hand. Appendix II gives titles and particulars. An endeavour has been made during the year to bring a number of

works of old standing to a termination as nearly as possible. One of them was Prof. Caland's Baudhāyana Śrauta-Sūtra, of which the last pages were in the press in December. This work has been in hand for 20 years. A second was Prof. Ganganath Jha's Tantravārttika translation, also in hand for the same long period. Sir George Grierson's Śiva-parinaya has made appreciable progress, one fascicle being completely and another almost completely finished. One new work was begun namely, the Tirthakalpa, edited by Prof. Bhandarkar and Pandit K. N. Sāhityabhusan. The first fascicle is just out. Of Muhammadan books the Maasir-i-Rahimi was taken up again, after an interruption of ten years. A reprint of the English translation of the Muntakhabut-Tawarikh was nearly completed, and will be ready for issue early next year. The Akbar Nama, after a 30 years' course, is approaching its termination, the index, preface and other additional matter being in the press, partly printed. Volume I of Prof. Yazdani's Amal-i-Salih was finished.

A special feature of the year's work was the resumption of intercourse with various (continental and other) Editors, which had been interrupted during the European War. Amongst the scholars with whom active correspondence took place with a view to strenuous publication of old works, the following may be mentioned: Prof. Jacobi, Prof. Caland, Prof. L. de la Vallée Poussin, Sir George Grierson, Prof. Ganganath Jha, Muni Indravijaya Sūri, Mr. H. Beveridge, Prof. Yazdani, Prof. Hidayat Husain, Lieut.-Col. Phillott, Lieut.-Col. Haig and others. One projected work was abandoned during the year, namely Sir Lucas King's translation of the Odes of Sa'di.

On the whole, great advance was made in the co-ordination of activities connected with the Bibliotheca Indica. Of late years this work had become congested and had gone beyond the control of our office. By strenuously following a policy of simplification, clearing up of arrears, and steady continuation of old work, the situation at the end of the year was one vastly more hopeful and simple than in the beginning. Unremitting labour is still needed, but if the Society continues its present policy, there is every reason to hope that we will soon become masters of the situation.

During the year, complete stock was taken of the publications in the Bibliotheca Indica in our possession, involving the counting of several hundred thousands of fascicles. A careful revision of the prices with a view to their systematisation was made by the Council, without involving any great enhancement of the prices.

A systematic description of all our issues in the series is in hand and is progressing well. A complete record copy of all issues in the original covers is being bound for office use and at

present 800 of our 1,724 issues are accessible for reference in that form.

Several revised price lists with accurate descriptions and annotations of the books from a bibliographical standpoint have been prepared, and some of them already published for distribution. It is hoped that during the ensuing year a full description of the complete series may be made available to students, librarians and bookbuyers. All this is progress in our work, on which the Society may highly congratulate itself.

Numismatics.

Mr. C. J. Brown was nominated Honorary Numismatist to the Society in succession to the late Mr. W. E. M. Campbell. Numismatic Supplement No. XXXVI (in 1922) has been published in December. It contained seven articles, including an exhaustive account of the Coinage of the Sharqī dynasty of Jaunpūr by Major H. M. Whittell, and an interesting contribution, the joint work of Mr. R. B. Whitehead and Prof. S. H. Hodivālā, describing the hitherto unrecognised coins of Muhammad Akbar as claimant to the Mughal throne. No accessions to the Society's cabinet have been reported to the Honorary Numismatist.

[APPENDIX I.]

Membership Statistics.

(As calculated for December, 31st, of each year.)

| YEAR. | ORDINARY. | | | | | | | EXTRA-ORDINARY. | | | Grand Total. | Membership. | FELLOWS. | |
|-------|-----------|---------------|----------|--------|-------------|-------|--------|---------------------|------------|--------|--------------|-------------|-----------|-----------|
| | PAYING. | | | | NON-PAYING. | | | Centenary Honorary. | Associate. | Total. | | | Honorary. | Ordinary. |
| | Resident. | Non-Resident. | Foreign. | Total. | Absent. | Life. | Total. | | | | | | | |
| 1901 | 123 | 133 | 13 | 269 | 37 | 22 | 59 | 4 | 12 | 16 | 344 | 26 | .. | |
| 1902 | 126 | 126 | 14 | 266 | 47 | 21 | 67 | 4 | 13 | 17 | 350 | 26 | .. | |
| 1903 | 127 | 126 | 15 | 268 | 46 | 21 | 67 | 4 | 13 | 17 | 352 | 24 | .. | |
| 1904 | 132 | 130 | 14 | 276 | 46 | 21 | 67 | 4 | 13 | 17 | 360 | 30 | .. | |
| 1905 | 144 | 133 | 12 | 288 | 48 | 20 | 68 | 4 | 13 | 17 | 373 | 29 | .. | |
| 1906 | 173 | 147 | 15 | 335 | 52 | 20 | 72 | 4 | 12 | 16 | 423 | 30 | .. | |
| 1907 | 174 | 175 | 20 | 369 | 31 | 20 | 51 | 4 | 12 | 16 | 436 | 28 | .. | |
| 1908 | 181 | 193 | 17 | 391 | 38 | 19 | 57 | 4 | 13 | 17 | 465 | 30 | .. | |
| 1909 | 183 | 217 | 13 | 413 | 40 | 20 | 60 | 4 | 14 | 18 | 491 | 28 | .. | |
| 1910 | 209 | 217 | 16 | 442 | 43 | 23 | 66 | 4 | 14 | 18 | 526 | 27 | 17 | |
| 1911 | 200 | 225 | 19 | 444 | 53 | 22 | 75 | 3 | 14 | 17 | 536 | 28 | 19 | |
| 1912 | 203 | 229 | 19 | 451 | 43 | 23 | 66 | 3 | 13 | 16 | 533 | 27 | 24 | |
| 1913 | 200 | 211 | 19 | 430 | 46 | 23 | 69 | 3 | 14 | 17 | 516 | 27 | 28 | |
| 1914 | 191 | 187 | 19 | 397 | 50 | 26 | 76 | 3 | 14 | 17 | 490 | 24 | 27 | |
| 1915 | 171 | 188 | 21 | 380 | 40 | 25 | 65 | 3 | 15 | 18 | 463 | 29 | 31 | |
| 1916 | 145 | 159 | 18 | 322 | 60 | 25 | 85 | 3 | 15 | 18 | 425 | 26 | 33 | |
| 1917 | 150 | 144 | 15 | 309 | 45 | 24 | 69 | 2 | 12 | 14 | 392 | 22 | 35 | |
| 1918 | 153 | 145 | 17 | 315 | 43 | 24 | 67 | 2 | 10 | 12 | 394 | 22 | 39 | |
| 1919 | 141 | 128 | 15 | 284 | 64 | 25 | 89 | 2 | 11 | 13 | 386 | 18 | 36 | |
| 1920 | 161 | 134 | 15 | 310 | 32 | 26 | 58 | 2 | 11 | 13 | 381 | 28 | 38 | |
| 1921 | 160 | 132 | 16 | 308 | 26 | 26 | 51 | 2 | 12 | 14 | 373 | 28 | 40 | |
| 1922 | 160 | 141 | 16 | 317 | 26 | 26 | 52 | 2 | 13 | 15 | 384 | 30 | 39 | |
| 1923 | 147 | 120 | 13 | 280 | 30 | 27 | 57 | 2 | 11 | 13 | 350 | 28 | 37 | |

N.B.—Honorary Fellows were styled Honorary Members before 1911.

[APPENDIX II.]

List of Publications issued by the Asiatic Society of
Bengal during 1923.

(a) Catalogues :

Descriptive Catalogue of Sanskrit Manuscripts.

| | |
|--|------------------|
| Vol. II: Veda, pp. xii, 201-1455 .. | Price Rs. 17 8 0 |
| Vol. IV : History and Geography, pp. xii, 1-126 .. | Price Rs. 2 8 0 |

(b) Bibliotheca Indica (New Series) :

| | |
|---|------------------|
| No. 1451: Samarāṅga Kahā. Fasc. VIII .. | Price Rs. 0 12 0 |
| No 1452: Vajjālaggam. Fasc. II .. | Price Rs. 0 12 0 |
| No. 1453: Baudhāyana Śrauta Sūtram. Vol. III, Fasc. V (end text) .. | Price Rs. 0 12 0 |
| No. 1454: 'Amal-i-Sālih, or Shāh Jahān Nāmāh. Fasc. V (end Vol. I) .. | Price Rs. 1 0 0 |
| No. 1455: Kṛtyaratnākara. Fasc. III .. | Price Rs. 0 12 0 |
| No. 1456: Tantravārttika. Fasc. XVII .. | Price Rs. 1 4 0 |
| No. 1457: Śiva-Pariṇayaḥ. Fasc. IV .. | Price Rs. 0 12 0 |
| No. 1458: Karmaṇpradīpa. Fasc. II .. | Price Rs. 0 12 0 |
| No. 1459: Tīrthakalpa. Fasc. I .. | Price Rs. 0 12 0 |
| No. 1462: Kavikalpalatā. Fasc. II .. | Price Rs. 0 12 0 |

(c) Memoirs, Vol. VII :

| | |
|---|-----------------|
| No. 5: Vocabulary of Peculiar Vernacular Bengali Words .. | Price Rs. 4 8 0 |
|---|-----------------|

(d) Journal and Proceedings (New Series), Vol. XVIII :

| | |
|--|------------------|
| No. 3: Official .. | Price Rs. 1 14 0 |
| No. 4: Miscellaneous .. | Price Rs. 1 2 0 |
| No. 5: Miscellaneous .. | Price Rs. 1 14 0 |
| No. 6: Ninth Indian Science Congress .. | Price Rs. 4 14 0 |
| No. 7: Philological .. | Price Rs. 3 6 0 |
| No. 8: Bibliographical .. | Price Rs. 2 4 0 |
| No. 9: Numismatic Supplement .. | Price Rs. 1 2 0 |
| No. 10: Biological (completes the Volume) .. | Price Rs. 2 10 0 |

Title pages and Indexes for Vols. XI-XVII. (*Free to Members and Subscribers on application.*)

PRICE LISTS FOR FREE DISTRIBUTION.

1. General Notice, Bibliotheca Indica.
2. List of Bibliographical Works.
3. List of Bibliographical Works relating to Muhammadanism.
4. Bibliographical Notes on Jaina Works.
5. Recent and forthcoming publications.
6. Memoirs, detailed systematic description with indexes.

[APPENDIX III.]

ABSTRACT STATEMENT
OF
RECEIPTS AND DISBURSEMENTS
OF THE
ASIATIC SOCIETY OF BENGAL
FOR
THE YEAR 1923.

1923.

STATEMENT

Asiatic Society

Dr.

To ESTABLISHMENT.

| | Rs. | As. | P. | Rs. | As. | P. |
|--|--------|-----|----|--------|-----|----|
| Salaries | 10,154 | 14 | 9 | | | |
| Commission | 450 | 11 | 3 | | | |
| Pension | 216 | 0 | 0 | | | |
| Share of Gratuity to late Cashier, etc. .. | 501 | 10 | 8 | | | |
| | | | | 11,323 | 4 | 8 |

To CONTINGENCIES.

| | | | | | | |
|-------------------------------------|-------|----|----|-------|----|---|
| Stationery | 283 | 5 | 6 | | | |
| Fan and Light and Telephone | 395 | 15 | 0 | | | |
| Taxes | 1,495 | 0 | 0 | | | |
| Postage | 1,099 | 8 | 0 | | | |
| Freight | 51 | 10 | 3 | | | |
| Audit Fee | 250 | 0 | 0 | | | |
| Petty Repairs | 60 | 12 | 0 | | | |
| Insurance | 343 | 12 | 0 | | | |
| Miscellaneous | 701 | 11 | 10 | | | |
| Winter Clothing, etc. | 158 | 4 | 0 | | | |
| | | | | 4,839 | 14 | 7 |

To LIBRARY AND COLLECTIONS.

| | | | | | | |
|---------------------------|-----|---|----|-------|---|----|
| Purchase of Books | 761 | 9 | 10 | | | |
| Book-binding | 826 | 7 | 0 | | | |
| | | | | 1,588 | 0 | 10 |

To PUBLICATIONS.

| | | | | | | |
|---|-------|----|---|----------|----|----|
| Journal and Memoirs | 6,501 | 10 | 6 | | | |
| Indexes | 1,072 | 10 | 0 | | | |
| Circulars, etc., printing charges | 504 | 2 | 0 | | | |
| | | | | 8,078 | 6 | 6 |
| To Bad Debts Written-off | | | | 824 | 14 | 2 |
| Balance as per Balance Sheet | | | | 2,17,731 | 15 | 10 |
| TOTAL Rs. | | | | 2,44,386 | 8 | 7 |

No. 1.
of Bengal.

1923.

Cr.

| | | Rs. | As. | P. | Rs. | As. | P. |
|---------------------------------|----|-----|-----|----|----------|-----|----|
| By Balance from last Account .. | .. | .. | .. | .. | 2,13,868 | 3 | 7 |

BY CASH RECEIPTS.

| | | | | | | | |
|--|----|--------|---|---|--------|----|---|
| Interest on Investments .. | .. | 12,925 | 9 | 0 | | | |
| Cash Sale of Publications .. | .. | 233 | 9 | 9 | | | |
| Rent .. | .. | 1,150 | 0 | 0 | | | |
| Advertisements .. | .. | 985 | 0 | 0 | | | |
| Books .. | .. | 43 | 7 | 0 | | | |
| Annual grant from Government for publication of papers in the Journal. (Anthropological grant.) .. | .. | 2,000 | 0 | 0 | | | |
| Miscellaneous credit .. | .. | 480 | 3 | 3 | | | |
| | | | | | 17,817 | 13 | 0 |

BY PERSONAL ACCOUNT.

| | | | | | | | |
|---|----|-------|----|---|--------|---|---|
| Members' Subscriptions .. | .. | 8,942 | 14 | 6 | | | |
| Subscriptions to Journal and Memoirs .. | .. | 2,022 | 0 | 0 | | | |
| Compounding Subscriptions .. | .. | 100 | 0 | 0 | | | |
| Admission Fees .. | .. | 800 | 0 | 0 | | | |
| Publications, Credit Sale .. | .. | 735 | 9 | 6 | | | |
| Miscellaneous .. | .. | 100 | 0 | 0 | | | |
| | | | | | 12,700 | 8 | 0 |

| | | | | |
|----------------|----|----------|---|---|
| TOTAL Rs. | .. | 2,44,386 | 8 | 7 |
|----------------|----|----------|---|---|

No. 2.

No. 1, in Account with the A.S.B.

1923.

Publication of Oriental Works and Works of Instruction in Eastern Languages
Works hitherto unpublished (Rs. 250).

Cr.

| | Rs. | As. | P. | Rs. | As. | P. |
|---------------------------------|-----|-----|----|--------|-----|----|
| By Balance from last Account .. | .. | .. | .. | 55,961 | 7 | 1 |

BY CASH RECEIPTS.

| | | | | | | |
|--|-------|----|----|-------|---|---|
| Government of Bengal's annual grant .. | 8,250 | 0 | 0 | | | |
| Cash Sale of Publications .. | 582 | 8 | 0 | | | |
| Advances recovered .. | 277 | 15 | 0 | | | |
| | | | | 9,110 | 7 | 0 |
| By Credit Sale of Publications .. | .. | .. | .. | 3,058 | 6 | 3 |

TOTAL Rs. .. 68,130 4 4

No. 3.

No. 2, in Account with the A.S.B.

1923.

Rs. 250 for the publication of Arabic and Persian Works of
(without remuneration).

Cr.

| | Rs. | As. | P. | Rs. | As. | P. |
|--------------------------------|-----|-----|----|--------|-----|----|
| By Balance from last Account.. | .. | .. | .. | 18,869 | 0 | 0 |

BY CASH RECEIPTS.

| | | | | | | |
|--|----|----|----|--------|---|---|
| Government of Bengal's annual grant up to the 31st March, 1924 .. | .. | .. | .. | 3,000 | 0 | 0 |
| TOTAL Rs. .. | .. | .. | .. | 21,869 | 0 | 0 |

STATEMENT

1923. *Sanskrit Manuscripts*

From an annual grant of Rs. 3,200 made by the Government of Bengal Government; and Rupees 2,400 from the same

Dr.

TO CASH EXPENDITURE.

| | | | Rs. | As. | P. | Rs. | As. | P. |
|------------------------------|----|----|-----------|-----|----|--------|-----|----|
| To Salaries | .. | .. | 2,616 | 3 | 6 | | | |
| Insurance | .. | .. | 125 | 0 | 0 | | | |
| Winter Clothing | .. | .. | 26 | 12 | 0 | | | |
| Contingencies | .. | .. | 68 | 4 | 2 | | | |
| Pension | .. | .. | 250 | 0 | 0 | | | |
| Fan and Light and Telephone | .. | .. | 123 | 4 | 9 | | | |
| Manuscripts Purchase | .. | .. | 140 | 0 | 0 | | | |
| Stationery | .. | .. | 53 | 4 | 6 | | | |
| Gratuity | .. | .. | 50 | 0 | 0 | | | |
| Printing | .. | .. | 4,130 | 14 | 0 | | | |
| | | | | | | 7,583 | 10 | 11 |
| Balance as per Balance Sheet | .. | .. | | | | 15,980 | 6 | 5 |
| | | | | | | | | |
| | | | TOTAL Rs. | | | 23,564 | 1 | 4 |

STATEMENT

1923. *Arabic and Persian Manus-*

From an annual grant of Rs. 5,000 made by the Government of India for by the Society for Government; for the purchase of further Persian Manuscripts, found

Dr.

TO CASH EXPENDITURE.

| | | | Rs. | As. | P. | Rs. | As. | P. |
|------------------------------|----|----|-----------|-----|----|-------|-----|----|
| To Cataloguing | .. | .. | 928 | 0 | 0 | | | |
| Salaries | .. | .. | 4,690 | 14 | 6 | | | |
| Manuscripts Purchase | .. | .. | 305 | 0 | 0 | | | |
| Binding | .. | .. | 14 | 0 | 0 | | | |
| Contingencies | .. | .. | 40 | 4 | 5 | | | |
| Stationery | .. | .. | 57 | 12 | 6 | | | |
| Winter Clothing | .. | .. | 11 | 0 | 0 | | | |
| Insurance | .. | .. | 31 | 4 | 0 | | | |
| Fan and Light | .. | .. | 76 | 9 | 6 | | | |
| Printing | .. | .. | 1,420 | 8 | 0 | | | |
| | | | | | | 7,575 | 4 | 11 |
| Balance as per Balance Sheet | .. | .. | | | | 947 | 9 | 2 |
| | | | | | | | | |
| | | | TOTAL Rs. | | | 8,522 | 14 | 1 |

No. 4.

Fund, in Account with the A.S.B.

1923.

for the cataloguing of Sanskrit Manuscripts acquired by the Society for
Government for the salary of the Officer-in-Charge.

Cr.

| | Rs. | As. | P. | Rs. | As. | P. |
|--------------------------------|-----|-----|----|--------|-----|----|
| By Balance from last Account.. | .. | .. | .. | 19,964 | 1 | 4 |

BY CASH RECEIPTS.

| | | | | | | |
|--|-------|---|---|-------|---|---|
| Government of Bengal's annual grant for Cataloguing | 3,600 | 0 | 0 | 3,600 | 0 | 0 |
|--|-------|---|---|-------|---|---|

| | | | | |
|-----------|----|--------|---|---|
| TOTAL Rs. | .. | 23,564 | 1 | 4 |
|-----------|----|--------|---|---|

No. 5.

cripts Fund, in Account with the A.S.B.

1923.

the cataloguing and binding of Arabic and Persian Manuscripts, acquired
Manuscripts, and for the preparation of notices of Arabic and
in various Libraries in India.

Cr.

| | Rs. | As. | P. | Rs. | As. | P. |
|--------------------------------|-----|-----|----|-------|-----|----|
| By Balance from last Account.. | .. | .. | .. | 3,522 | 14 | 1 |

BY CASH RECEIPTS.

| | | | | |
|--------------------------------------|----|-------|---|---|
| Government of India's annual grant.. | .. | 5,000 | 0 | 0 |
|--------------------------------------|----|-------|---|---|

| | | | | |
|-----------|----|-------|----|---|
| TOTAL Rs. | .. | 8,522 | 14 | 1 |
|-----------|----|-------|----|---|

1923.

STATEMENT Indian Science Con-

From the subscriptions of

Dr.

To CASH EXPENDITURE.

| | | | Rs. | As. | P. | Rs. | As. | P. |
|------------------------------|----|----|-------|-----|----|-------|-----|----|
| To Advances | .. | .. | 210 | 0 | 0 | | | |
| Bonus .. | .. | .. | 103 | 0 | 0 | | | |
| Freight and Postage | .. | .. | 263 | 11 | 0 | | | |
| Contingencies | .. | .. | 58 | 8 | 6 | | | |
| Subscriptions | .. | .. | 5 | 0 | 0 | | | |
| Printing | .. | .. | 2,298 | 0 | 0 | | | |
| | | | | | | 2,938 | 3 | 6 |
| Balance as per Balance Sheet | .. | .. | .. | | | 5,466 | 0 | 8 |
| | | | | | | | | |
| TOTAL Rs. | | | .. | | | 8,404 | 4 | 2 |

1923.

STATEMENT Barclay Memorial

From a sum of Rs. 500 odd given in 1896 by the Surgeon
encouragement of Medical

Dr.

| | | | Rs. | As. | P. | Rs. | As. | P. |
|--------------------------|----|----|-----|-----|----|-----|-----|----|
| To Balance— | | | | | | | | |
| G.P. Notes as per contra | .. | .. | 500 | 0 | 0 | | | |
| Accumulated interest | .. | .. | 121 | 14 | 10 | | | |
| | | | | | | 621 | 14 | 10 |

TOTAL Rs.

..

621 14 10

No. 6.

Press, in Account with the A.S.B.
members of the Congress.

1923.

Cr.

| | Rs. As. P. | Rs. As. P. |
|------------------------------------|------------|------------|
| By Balance from last Account | .. | 2,342 14 4 |

BY CASH RECEIPTS.

| | | |
|---------------------|------------|------------|
| Subscriptions | 5,861 5 10 | |
| Donation | 200 0 0 | |
| | <hr/> | 6,061 5 10 |

| | | |
|--------------|-------|-----------|
| TOTAL Rs. .. | <hr/> | 8,404 4 2 |
|--------------|-------|-----------|

No. 7.

Fund, in Account with the A.S.B.

1923.

General, I.M.S., for the foundation of a medal for the
and Biological Science.

Cr.

| | Rs. As. P. | Rs. As. P. |
|--|------------|------------|
| By Balance from last Account— | | |
| Rs. 400, 3½% G.P. Notes, 1854-55 at face value | 400 0 0 | |
| Rs. 100, 3½% G.P. Notes, 1900-1 at face value | 100 0 0 | |
| Accumulated interest | 107 2 10 | |
| | <hr/> | 607 2 10 |

BY CASH RECEIPTS.

| | | |
|-----------------------------|---------|-----------|
| Interest for the year | 14 12 0 | |
| TOTAL Rs. .. | <hr/> | 621 14 10 |

STATEMENT

Servants' Pension

1923.

Founded in 1876 as the Peddington Pension Fund,

| Dr. | | Rs. | As. | P. | Rs. | As. | P. |
|------------------------------|----|-----|-----|----|-------|-----|----|
| To Bank's Commission | .. | .. | .. | .. | 0 | 4 | 0 |
| Balance as per Balance Sheet | .. | .. | .. | .. | 1,759 | 15 | 10 |

| | | | | |
|-----------|----|-------|---|----|
| TOTAL Rs. | .. | 1,760 | 3 | 10 |
|-----------|----|-------|---|----|

STATEMENT

Building

1923.

From a sum of Rs. 40,000 given by the Government of India
proceeds of a portion

| Dr. | | TO CASH EXPENDITURE. | | Rs. | As. | P. | Rs. | As. | P. |
|---------------------------------------|----|----------------------|----|----------|-----|----|--------|-----|----|
| To Architects' Fee | .. | .. | .. | 26,201 | 9 | 0 | 26,204 | 15 | 0 |
| Bank's Commission | .. | .. | .. | 3 | 6 | 0 | | | |
| Balance as per Balance Sheet— | | | | | | | | | |
| Rs. 40,000, 3½% G.P. Notes, at cost | .. | .. | .. | 38,025 | 0 | 0 | 96,499 | 13 | 0 |
| Accumulated interest and cash balance | .. | .. | .. | 58,474 | 13 | 0 | | | |
| TOTAL Rs. | .. | .. | .. | 1,22,704 | 12 | 0 | | | |

STATEMENT

Anthropological

1923.

This sum was set aside in 1918 for the

| Dr. | | | | Rs. | As. | P. |
|------------------------------|----|----|----|-----|-----|-----|
| To Purchase of Books | .. | .. | .. | 55 | 3 | 1 |
| Balance as per Balance Sheet | .. | .. | .. | 913 | 1 | 2 |
| TOTAL Rs. | | | | .. | 968 | 4 3 |

No. 8.

Fund, in Account with the A.S.B.

1923.

with Rs. 500 odd from the Peddington Pension Fund.

| Cr. | | Rs. | As. | P. | Rs. | As. | P. |
|------------------------------|----|-------|-----|----|-------|-----|----|
| By Balance from last Account | .. | 1,711 | 3 | 10 | | | |
| BY CASH RECEIPTS. | | | | | | | |
| Interest for the year | .. | 49 | 0 | 0 | 1,760 | 3 | 10 |
| TOTAL Rs. | | .. | | | 1,760 | 3 | 10 |

No. 9.

Fund, in Account with the A.S.B.

1923.

towards the rebuilding of the Society's Premises, and from the sale of the Society's land.

| Cr. | | Rs. | As. | P. |
|---------------------------------|----|----------|----------|------|
| By Balance from last Account .. | .. | 1,19,102 | 14 | 0 |
| BY CASH RECEIPTS. | | | | |
| Interest for the year | .. | 2,821 | 14 | 0 |
| Sale of old material | .. | 780 | 0 | 0 |
| TOTAL Rs. | | .. | 1,22,704 | 12 0 |

No. 10.

Fund, in Account with the A.S.B.

1923.

purchase of Anthropological books.

| Cr. | | Rs. | As. | P. |
|---------------------------------|----|-----|-----|-----|
| By Balance from last Account .. | .. | 968 | 4 | 3 |
| TOTAL Rs. | | .. | 968 | 4 3 |

STATEMENT

1923. *Catalogue of Scientific Serial Pub-*

| Dr. | | | Rs. | As. | P. |
|---------------------------------|----|----|-----|-----|----|
| To Balance as per Balance Sheet | .. | .. | 415 | 0 | 0 |
| TOTAL Rs. | | | 415 | 0 | 0 |

STATEMENT

1923. *Bureau of Infor-*

From an annual grant of Rs. 1,200 made by the Govern-

| Dr. | | | Rs. | As. | P. |
|---------------------------------|----|----|-------|-----|----|
| To Balance as per Balance Sheet | .. | .. | 1,600 | 0 | 0 |
| TOTAL Rs. | | | 1,600 | 0 | 0 |

STATEMENT

1923. *International Catalogue of Scienti-*

| Dr. | | | Rs. | As. | P. |
|--|----|----|-------|-----|----|
| To Subscriptions to Royal Society, England | .. | .. | 3,928 | 2 | 4 |
| Balance as per Balance Sheet | .. | .. | 4,424 | 7 | 8 |
| TOTAL Rs. | | | 8,352 | 10 | 0 |

No. 11.

lications, Calcutta, in Acct. with the A.S.B. 1923.

| Cr. | | | Rs. As. P. | | |
|------------------------------|----|----|------------|---|---|
| By Balance from last Account | .. | .. | 395 | 0 | 0 |
| BY CASH RECEIPTS. | | | | | |
| Sale of Catalogue .. | .. | .. | 20 | 0 | 0 |
| TOTAL Rs. | .. | | 415 | 0 | 0 |

No. 12.

mation, in Account with the A.S.B. 1923.

ment of Bengal for the salary of the Officer-in-Charge.

| Cr. | | | Rs. As. P. | | |
|--------------------------------|----|----|------------|---|---|
| By Balance as per last Account | .. | .. | 1,600 | 0 | 0 |
| TOTAL Rs. | .. | | 1,600 | 0 | 0 |

No. 13.

fic Literature, in Account with the A.S.B. 1923.

| Cr. | | | Rs. As. P. | | |
|---|----|----|------------|----|---|
| By Balance as per last Account | .. | .. | 5,067 | 10 | 0 |
| BY CASH RECEIPTS. | | | | | |
| Subscription to International Catalogue | .. | | 3,285 | 0 | 0 |
| TOTAL Rs. | .. | | 8,352 | 10 | 0 |

STATEMENT

1923.

Akbarnama

This sum is set apart in 1923 for the

Dr.

| | | | | | Rs. | As. | P. |
|------------|----|----|----|----|--------|-----|----|
| Balance .. | .. | .. | .. | .. | 10,625 | 0 | 0 |
| TOTAL Rs. | | | | | 10,625 | 0 | 0 |

STATEMENT

1923.

Personal

Dr.

| | | | | | Rs. | As. | P. | Rs. | As. | P. |
|--|----|----|----|----|--------|-----|----|--------|-----|----|
| To Balance from last Account .. | .. | .. | .. | .. | 4,623 | 5 | 3 | | | |
| Advances for postage, etc. .. | .. | .. | .. | .. | 6 | 3 | 0 | | | |
| Asiatic Society's Subscriptions, etc. .. | .. | .. | .. | .. | 12,700 | 8 | 0 | | | |
| Sales of Oriental Publications as per | .. | .. | .. | .. | 3,058 | 6 | 3 | | | |
| Fund No. 1 .. | .. | .. | .. | .. | | | | 15,758 | 14 | 3 |

| | | | | |
|-----------|----|--------|---|---|
| TOTAL Rs. | .. | 20,388 | 6 | 6 |
|-----------|----|--------|---|---|

STATEMENT

1923.

Fixed

Dr.

| | | | | | Rs. | As. | P. |
|---------------------------------|----|----|----|----|-------|-----|----|
| To Balance from last Account .. | .. | .. | .. | .. | 8,619 | 11 | 7 |
| TOTAL Rs. | | | | | 8,619 | 11 | 7 |

No. 14.

Reprint, in Acct. with the A.S.B.
reprint of the Akbarnama in England.

1923.

Cr.

| | | Rs. | As. | P. |
|--|----|---------------|----------|----------|
| By Transfer Receipt from O.P.F. No. 2. | .. | 10,625 | 0 | 0 |
| TOTAL Rs. | .. | 10,625 | 0 | 0 |

No. 15.

Account.

1923.

Cr.

| | Rs. | As. | P. | Rs. | As. | P. |
|--|-----|-----|----|--------|-----|----|
| By Cash Receipts During the year | .. | .. | .. | 16,492 | 12 | 7 |
| Bad Debts Written-off, Asiatic Society | .. | .. | .. | 824 | 14 | 2 |
| Do. O.P. Fund No. 1 | .. | .. | .. | 35 | 0 | 0 |

| By Outstandings. | Due to the Society. | | | Due by the Society. | | | |
|--------------------------|---------------------|-----|----|---------------------|-----|----|------------|
| | Rs. | As. | P. | Rs. | As. | P. | |
| Members | 3,338 | 4 | 3 | 143 | 10 | 0 | |
| Subscribers | .. | .. | .. | 100 | 11 | 0 | |
| Bill Collector's Deposit | .. | .. | .. | 100 | 0 | 0 | |
| Elliot Prize Account | .. | .. | .. | 210 | 0 | 0 | |
| Miscellaneous | 584 | 6 | 6 | 332 | 10 | 0 | |
| | 3,422 | 10 | 9 | 886 | 15 | 0 | .. |
| | | | | | | | 3,035 11 9 |
| TOTAL Rs. | | | | | | | .. |
| | | | | | | | 20,388 6 6 |

No. 16.

Deposit.

1923.

Cr.

| | | Rs. | As. | P. |
|------------------------------|----|--------------|-----------|----------|
| By Printing Charges | .. | 2,422 | 2 | 8 |
| Balance as per Balance Sheet | .. | 6,197 | 8 | 11 |
| TOTAL Rs. | .. | 8,619 | 11 | 7 |

STATEMENT

Investment

| | | |
|---------------------------------|-----|---|
| | Dr. | |
| | | Face Value. Market Value. |
| | | Rs. As. P. Rs. As. P. |
| To Balance from last Account .. | | .. 2,84,300 0 0 2,73,206 3 10 |

TOTAL Rs. 2,84,300 0 0 2,73,206 3 10

| FUNDS. | December, 1923, Valua- tion. | Valuation as per Individual Account. | Less on Re-valuation on December, 1923. |
|--|------------------------------------|--|--|
| GENERAL FUND. | | | |
| *Rs. 16,700/- 3½% Government Loan of 1842-43 | Rs. A. P. | Rs. A. P. | Rs. A. P. |
| @ Rs. 63 2/- % ... | 10,541 14 0 | | |
| *Rs. 1,53,700/- 3½% Government Loan of 1854-55 | | | |
| @ Rs. 63 2/- % ... | 97,023 2 0 | | |
| *Rs. 2,300/- 3½% Government Loan of 1865 | | | |
| @ Rs. 63 2/- % ... | 1,767 8 0 | | |
| Rs. 100/- 3½% Government Loan of 1865 | | | |
| @ Rs. 63 2/- % ... | 63 2 0 | 2,23,181 13 10 | 76,542 7 10 |
| Rs. 8,000/- 3½% Government Loan of 1879 | | | |
| @ Rs. 63 2/- % ... | 5,050 0 0 | | |
| Rs. 51,000/- 3½% Government Loan of 1900-01 | | | |
| @ Rs. 63 2/- % ... | 32,193 12 0 | | |
| Rs. 10,100/- 4% Government Loan of 1915-16 | | | |
| @ Rs. 99 12/- % ... | 10,074 12 0 | 10,100 0 0 | 25 4 0 |
| BUILDING FUND. | | | |
| Rs. 40,000/- 3½% Government Loan of 1865 | | | |
| @ Rs. 63 2/- % ... | 25,250 0 0 | 33,025 0 0 | 12,775 0 0 |
| PENSION FUND. | | | |
| Rs. 1,400/- 3½% Government Loan of 1865 | | | |
| @ Rs. 63 2/- % ... | 883 12 0 | 1,399 6 0 | 515 10 0 |
| BARCLAY MEMORIAL FUND. | | | |
| Rs. 400/- 3½% Government Loan of 1854-55 | | | |
| @ Rs. 63 2/- % ... | 252 8 0 | | |
| Rs. 100/- 3½% Government Loan of 1900-01 | | | |
| @ Rs. 63 2/- % ... | 63 2 0 | 500 0 0 | 184 6 0 |
| TOTAL Rs. ... | 1,83,163 8 0 | 2,73,206 3 10 | 90,042 11 10 |

* Investments of Permanent Reserve.

No. 17.

Account.

1923.

Cr.

| | Face Value. | | | Market Value. | | |
|---|-------------|----------|-----|---------------|--------|-------|
| | Rs. | As. | P. | Rs. | As. | P. |
| By Balance as per Balance Sheet | .. | 2,84,300 | 0 0 | 1,83,163 | 8 | 0 |
| Less on Re-valuation at end of December, 1923 | .. | .. | .. | .. | 90,042 | 11 10 |
| TOTAL | Rs. | 2,84,300 | 0 0 | 2,73,206 | 3 | 10 |

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1923.

STATEMENT War Bond

| | | Dr. | | | Face Value. | | | Cost. | | |
|---------------------------------|----|--------|---|---|-------------|----|----|------------|--|--|
| | | | | | Rs. As. P. | | | Rs. As. P. | | |
| To Balance from last Account .. | .. | 80,000 | 0 | 0 | 81,693 | 11 | 10 | | | |
| TOTAL Rs. | | 80,000 | 0 | 0 | 81,693 | 11 | 10 | | | |

| FUNDS. | December, 1923, Valuation. | | | Valuation as per War Bond Account. | | | Less on Re-valuation on December, 1923. | | |
|---|----------------------------|----|----|------------------------------------|----|----|---|----|----|
| | Rs. | A. | P. | Rs. | A. | P. | Rs. | A. | P. |
| Rs. 75,000/- 5½% Bonds of 1923 @ Rs. 102/2/- .. | 76,593 | 12 | 0 | 81,693 | 11 | 10 | 74 | 15 | 10 |
| Rs. 5,000/- 6% Bonds of 1923 @ Rs. 100/8/- .. | 5,025 | 0 | 0 | | | | | | |
| TOTAL Rs. .. | 81,618 | 12 | 0 | 81,693 | 11 | 10 | 74 | 15 | 10 |

1923.

STATEMENT Treasury Bills

| | | Dr. | | | Face Value. | | | Cost. | | |
|---------------------------------|----|--------|---|---|-------------|---|---|------------|--|--|
| | | | | | Rs. As. P. | | | Rs. As. P. | | |
| To Balance from last Account .. | .. | 65,000 | 0 | 0 | 63,578 | 2 | 0 | | | |
| TOTAL Rs. | | 65,000 | 0 | 0 | 63,578 | 2 | 0 | | | |

No. 18.

Account.

1923.

| | Cr. | | |
|---|---------------|------------|---------------------|
| | Face Value. | | Cost. |
| | Rs. | As. P. | Rs. As. P. |
| By Balance as per Balance Sheet .. | 80,000 | 0 0 | 81,618 12 0 |
| „ Loss on Re-valuation at end of December, 1923 | .. | .. | 74 15 10 |
| TOTAL Rs. | 80,000 | 0 0 | 81,693 11 10 |

No. 19.

Account.

1923.

| | Cr. | | |
|--|---------------|------------|-------------------|
| | Face Value. | | Cost. |
| | Rs. | As. P. | Rs. As. P. |
| By Realization from the Imperial Bank of India | 65,000 | 0 0 | 63,578 2 0 |
| TOTAL Rs. | 65,000 | 0 0 | 63,578 2 0 |

STATEMENT

1923.

Cash

Dr.

| | Rs. | As. | P. | Rs. | As. | P. |
|---------------------------------------|-----|--------|----|----------|-----|----|
| To Balance from last Account .. | .. | .. | .. | 12,259 | 8 | 10 |
| Asiatic Society .. | .. | 17,817 | 13 | 0 | | |
| Barclay Memorial Fund .. | .. | .. | 14 | 12 | 0 | |
| Oriental Publication Fund No. 1 .. | .. | 9,110 | 7 | 0 | | |
| Sanskrit MSS. Fund .. | .. | 3,600 | 0 | 0 | | |
| Arabic and Persian Fund .. | .. | 5,000 | 0 | 0 | | |
| Fixed Deposit .. | .. | 10,000 | 0 | 0 | | |
| Indian Science Congress .. | .. | 6,061 | 5 | 10 | | |
| O.P. Fund No. 2 .. | .. | 3,000 | 0 | 0 | | |
| Building Fund .. | .. | 3,601 | 14 | 0 | | |
| Treasury Bills .. | .. | 63,578 | 2 | 0 | | |
| International Catalogue .. | .. | 3,285 | 0 | 0 | | |
| Fixed Deposit (England) .. | .. | 2,422 | 2 | 8 | | |
| Scientific Catalogue (Kemp's Cat.) .. | .. | 20 | 0 | 0 | | |
| Servants' Pension Fund Account .. | .. | 49 | 0 | 0 | | |
| Personal Account .. | .. | 16,492 | 12 | 7 | | |
| | | | | 1,44,053 | 5 | 1 |
| TOTAL Rs. | .. | | | 1,56,312 | 13 | 11 |

STATEMENT

1923.

Balance

LIABILITIES.

| | Rs. | As. | P. | Rs. | As. | P. |
|---|-----|----------|----|----------|-----|----|
| Asiatic Society .. | .. | 2,17,731 | 15 | 10 | | |
| Oriental Publication Fund No. 1 .. | .. | 54,740 | 2 | 9 | | |
| Do. do. No. 2 .. | .. | 9,989 | 11 | 0 | | |
| Sanskrit MSS. Fund .. | .. | 15,980 | 6 | 5 | | |
| Arabic and Persian MSS. .. | .. | 947 | 9 | 2 | | |
| Indian Science Congress .. | .. | 5,466 | 0 | 8 | | |
| Barclay Fund .. | .. | 621 | 14 | 10 | | |
| Servants' Pension Fund .. | .. | 1,759 | 15 | 10 | | |
| Building Fund .. | .. | 96,499 | 13 | 0 | | |
| Scientific Catalogue .. | .. | 415 | 0 | 0 | | |
| Bureau of Information .. | .. | 1,600 | 0 | 0 | | |
| Anthropological Fund .. | .. | 913 | 1 | 2 | | |
| International Catalogue .. | .. | 4,424 | 7 | 8 | | |
| Akbarnama Reprint .. | .. | 10,625 | 0 | 0 | | |
| | | 4,21,715 | 2 | 4 | | |
| Less—Depreciation on Investment and War Bond a/c at close of the year as per Investment and War Bond Account .. | .. | 90,117 | 11 | 8 | | |
| | | | | 3,31,597 | 6 | 8 |
| TOTAL Rs. | .. | | | 3,31,597 | 6 | 8 |

We have examined the above Balance Sheet and the appended detailed Accounts with the Books and Vouchers presented to us and subject to our letter of even date to the Committee we certify that it is in accordance therewith correctly setting forth the position of the Society as at 31st December 1923.

No. 20.

Account.

1923.

Cr

| | Rs. As. P. | Rs. As. P. |
|--|-------------|--------------|
| By Asiatic Society .. | 25,829 10 7 | |
| Oriental Publication Fund No. 1 .. | 13,355 1 7 | |
| Sanskrit MSS. Fund .. | 7,583 10 11 | |
| Arabic and Persian MSS. Fund .. | 7,575 4 11 | |
| Indian Science Congress .. | 2,938 3 6 | |
| Servants' Pension Fund .. | 0 4 0 | |
| Building Fund .. | 26,204 15 0 | |
| Anthropological Fund .. | 55 3 1 | |
| International Catalogue .. | 3,928 2 4 | |
| Personal Account .. | 6 3 0 | |
| Oriental Publication Fund No. 2 .. | 1,254 5 0 | |
| Fixed Deposit (Imperial Bank, Calcutta) .. | 10,000 0 0 | |
| Balance as per Balance Sheet .. | | 98,730 15 11 |
| | | 57,581 14 0 |

TOTAL Rs. .. 1,56,312 13 11

No. 21.

Sheet. (Asiatic Society of Bengal.)

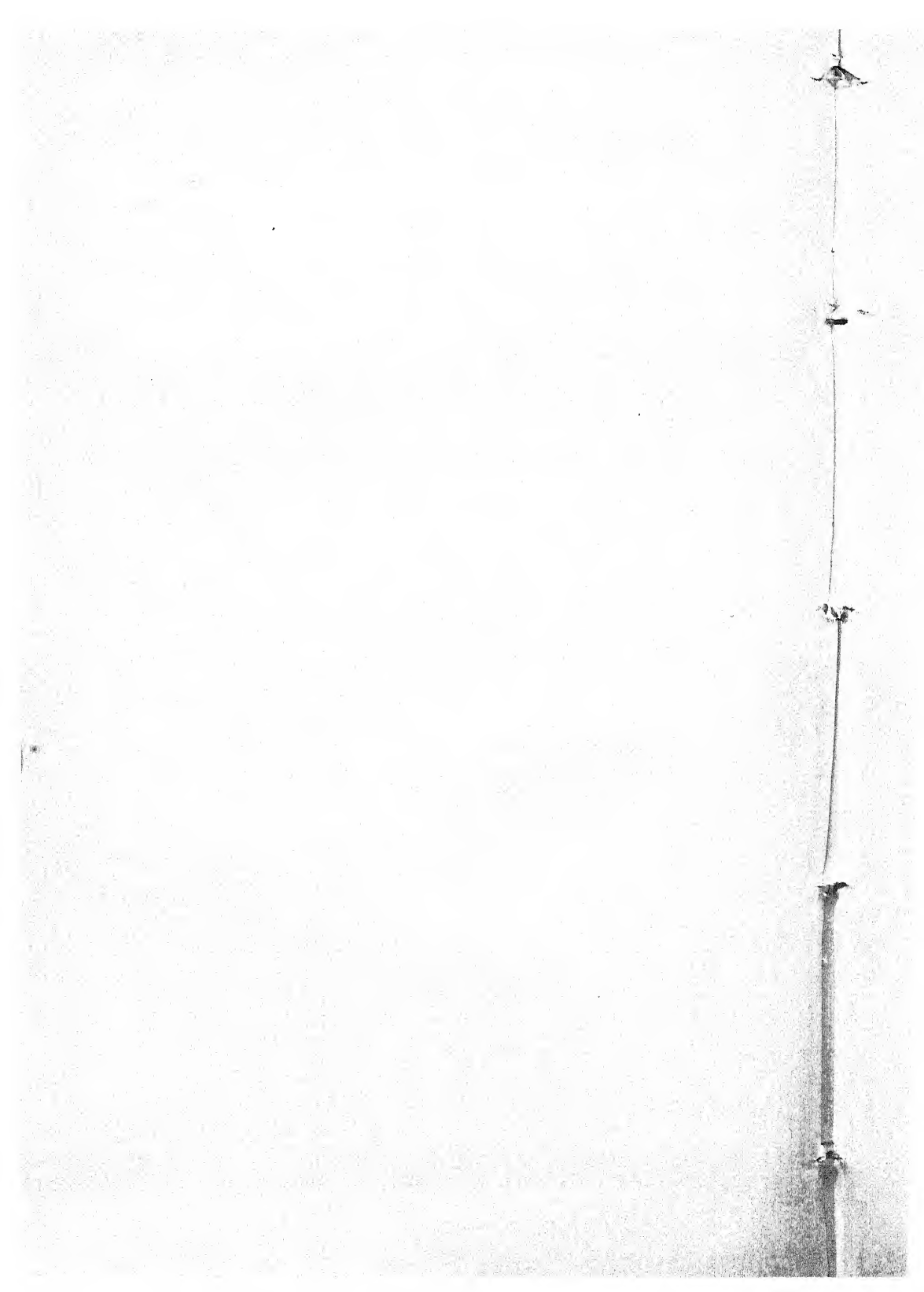
1923.

ASSETS.

| | Rs. As. P. | Rs. As. P. |
|---------------------|--------------|--------------|
| Investments .. | 1,83,163 8 0 | |
| War Bonds .. | 81,618 12 0 | |
| Fixed Deposit .. | 6,197 8 11 | |
| Personal Account .. | 3,035 11 9 | |
| Cash Account .. | 57,581 14 0 | |
| | | 3,31,597 6 8 |

TOTAL Rs. .. 3,31,597 6 8

SD. DR. C. V. RAMAN,
Honorary Treasurer.



[APPENDIX IV.]

Abstract Proceedings Council, 1923.

(Rule 48 f.)

ACCOMMODATION—

Use of room let to the Automobile Association of Bengal to be recovered for the Society's own purposes. Three months' notice to be given.

No. 4. 27-6-1923.

Correspondence with the Automobile Association of Bengal. Recorded that the Society needs for its own use the room occupied by the Association, and estimates its rent-value at Rs. 200 per mensem.

No. 9. 25-7-1923.

Request Automobile Association of Bengal, to be permitted continuation tenancy room, against enhanced rent; granted.

No. 17. 29-8-1923.

ADVERTISING—

The General Secretary to explore and report upon a scheme of exploiting the Society's wall space on the street front for remunerative advertising as suggested by him.

No. 6. 30-5-1923.

The feasibility to be tested of deriving income from poster advertising on hoardings in front of the Society's property, and the offer of the All-India Novelty Advertising Company, as outlined in their letter of the 25th May, 1923, to be experimentally accepted.

B. 7. 25-7-1923.

Resolution Business Committee meeting 11th July, 1923, expressly ratified by Council, and proposals experimentally accepted.

No. 10. 25-7-1923.

The General Secretary empowered to continue exploitation of advertisement space; not to enter into contracts for longer periods than a year; the question to be annually reviewed by Council; separate accounts to be kept under this heading; a distance of 20 feet on either side of the main entrance to be kept free from advertisements.

No. 8. 14-11-1923.

Report progress advertisement scheme; present income Rs. 500 monthly. Noted.

No. 1. 19-12-1923.

ANNUAL MEETING—

Announcement that H. E. the Governor of Bengal has intimated willingness to be present at the Annual Meeting. Recorded.

No. 6. 14-11-1923.

Consideration of drafts Annual Report, sections Physical Science, Numismatics, Bibliotheca Indica, Medicine, Natural History; to be prepared for next Council meeting.

No. 19. 19-12-1923

BUILDING—

Letter Professor Brühl requesting improvements to be made in the sanitary arrangements, and the installation of a switch board to work microscopes, etc.

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To be referred to a Committee consisting of President, Secretary, Treasurer.

No. 14. 28-2-1924.

Messrs. Norton & Co.'s estimates for revision sanitary arrangements, to be accepted after consultation with Messrs. Martin & Co.

No. 11. 25-4-1923.

Estimates Messrs. Martin & Co. for repairing the Society's building. Accepted. Question of new pavement second floor to be held over.

No. 10. 25-4-1923.

Further estimates Messrs. Martin & Co., including for new roof, approved.

No. 3. 30-5-1923.

Letter from Mr. Crouch suggesting that the repair operations by Messrs. Martin & Co. should be supervised by Messrs. Sudlow & Ballardie at terms indicated.

No action to be taken.

No. 2. 30-5-1923.

Proposals General Secretary rewiring and remodelling electric installation. Estimates to be called for and to be circulated.

No. 4. 30-5-1923.

Report progress repair operations. Noted.

No. 2. 27-6-1923.

Progress report General Secretary concerning repair operations, noted.

B. 9. 25-7-1923.

Progress report repair operations noted. General Secretary authorised to instal temporary fans and to make necessary arrangements whilst shifting working-rooms during repairs.

No. 2. 25-7-1923.

General Secretary authorised to dispose of old wood work and beams.

No. 3. 25-7-1923.

A sweeper's and durwan's lodge erected at estimated cost of Rs. 1,250 each; approved.

No. 2. 19-12-1923.

Fire protection. Estimates Minimax Limited, total cost about Rs. 500. Installation sanctioned.

No. 4. 19-12-1923.

COMMITTEES—

Committee Barclay Memorial Medal appointed consisting of the Biological Secretary, Dr. Brühl, Dr. Annandale, Dr. Christie, Col. Megaw, Dr. Kemp.

31-1-1923.

The members of the various Committees of Council for 1923, appointed.

No. 5. 28-2-1923.

In view of exceptional circumstances a small business Committee to be appointed for six months. To consist of President, General Secretary and Treasurer, and in addition an ex-President, and an ex-General Secretary; Sir Asutosh Mukherji and Dr. Christie to be these additional members.

No. 7. 30-5-1923.

Report business Committee on office administration adopted.

No. A1. 25-7-1923.

Request for co-operation, by the International Institute of Anthropology in Paris, in the preparation of a prehistoric Atlas.

A sub-committee to be appointed, to consider the matter, consisting of Dr. Annandale, Dr. Coggin Brown and Mr. Rama Prasad Chanda.

No. 6.

27-6-1923.

Report sub-committee on the preparation of an international prehistoric atlas, recorded.

No. 15.

25-7-1923.

Report sub-committee on the pre-historic atlas, with correspondence; recorded.

No. 16.

19-12-1923.

Request by the Bhandarkar Research Institute, Poona, for criticisms and remarks on the Mahabharata edition of the Institute.

A sub-committee to be appointed consisting of Sir Asutosh Mukherji, M. M. Hara Prasad Shastri, and Dr. Bhandarkar.

No. 7.

27-6-1923.

Request by Red Cross Society, Geneva, for co-operation in drawing up a world-map of Catastrophes. Sub-committee to be formed with power to co-opt, to deal with the matter, and to consist in the first instance of Dr. Coggin Brown, Major Knowles, Mr. Mahalanobis.

No. 7.

29-8-1923.

Proposals General Secretary utilisation Anthropological Fund. Sub-Committee to be appointed consisting of President, Mr. Mahalanobis, Mr. L. K. Ananta Krishna Aiyar.

No. 10.

29-8-1923.

A Sub-Committee to be formed, with power to co opt, to deal with questions of re-arrangement of pictures, busts and other objects of historical value, and to obtain expert advice on these matters. Members to be Dr. Annandale (President), Sir Asutosh Mukherji, Dr. Coggin Brown, Dr. Bhandarkar, Dr. Dunn, the General Secretary.

No. 2.

25-7-1923.

Report by Mr. Percy Brown, of Sub-Committee on artistic and historical possessions; noted with thanks to Mr. Brown.

No. 15.

19-12-1923.

Reports, minutes, recommendations, of the various sub-committees considered and confirmed in the Council meetings at various dates.

COUNCIL—

Mr. Johan van Manen to be General Secretary.

No. 2.

31-1-1923.

Dr. Christie to be a Member of Council.

No. 2.

31-1-1923.

Report, Business Committee, confirmed. Confidential report, dated 29-6-1923, to the Council, and note by the President, dated 27-6-1923, to be circulated to Council. Special Council Meeting to be convened for July 4th.

No. 1.

27-6-1923.

Minutes, Business Committee, to be incorporated in Council Minutes.

25-7-1923.

Sectional Secretaries; proposals by the Meeting of Secretaries as follows:

I. Rules of procedure with regard to the work of the Secretaries—

1. Any paper received by the General Secretary for reading in the next General Meeting of the Society up to one week before the date of the Council Meeting previous to that General Meeting should be sent for opinion to the Sectional Secretary concerned,

2. If no papers, or not sufficient papers to fill a meeting programme, have been received one week before the date of a Council Meeting, the Sectional Secretaries should be informed of the fact in order to try to obtain suitable papers for the next Meeting during the intervening week.

3. If Sectional Secretaries are to be absent from Calcutta for more than a week from the 15th in any month, they should give notice of the fact to the General Secretary, who should then make suitable arrangements with regard to papers submitted in the meantime.

4. If sufficient material has been received to fill the programme of a General Meeting one week before a Council Meeting, further papers received after that date but before the date of the Council Meeting will be postponed to the next General Meeting.

5. Whips should be sent to the Sectional Secretaries when insufficient material has come in for any General Meeting.

6. If the accumulation of unprinted papers or congestion in the Press does not permit, or makes it unprofitable, to set up in type new papers, the preliminary routine of obtaining opinions and circulating to the Publication Committee should not be deferred, pending such papers being sent to the Press.

II. In order to render possible constant and quick contact between the Sectional Secretaries and the General Secretary, it is desirable that the Society should be connected by telephone.

III. That the General Secretary shall make himself responsible that no material changes are introduced into any article in the course of proof-correcting. Any changes of the kind must be re-submitted to the Publication Committee.

Adopted.

No. 12.

29-8-1923.

In order to expedite speedy publication of outstanding matter and to wipe off arrears in publication, as an emergency measure, the President and General Secretary to be empowered to take special measures till the wiping off of arrears.

No. 12.

29-8-1923.

The special emergency measures to remain in force till the next Annual Meeting.

No. 13.

14-11-1923.

Absence President from Calcutta, from November 24th to December 15th. Noted.

No. 2.

14-11-1923.

Provisional list of nominations for Council, 1924-25; to be circulated to Council for discussion in next Council Meeting.

No. 9.

14-11-1923.

Nomination new Council for 1924-25 adopted; the name of Dr. Kemp, who will be absent from India during 1924, to be left out.

No. 20.

19-12-1924.

DEPUTATIONS—

Invitation to the Society to send representatives to the Fifth International Congress of Historical Sciences, Brussels, 1923. Mr. F. J. Monahan to be invited to represent the Society.

No. 6.

28-2-1923.

Invitation to the Society to send representatives to the Pan-Pacific Science Congress in Melbourne and Sydney, August, 1923. Letter to be sent expressing regret at being unable to arrange for a representative.

No. 7.

28-2-1923.

Invitation to the Society to attend the Centenary celebrations of the Royal Asiatic Society of Great Britain and Ireland. Sir Thomas Holland and Col. Phillott to be invited to undertake representation.

No. 5. 30-5-1923.

Invitation to Sir Thomas Holland and Col. Phillott, approved. Answers noted with thanks.

No. 8. 25-7-1923.

Report, Sir Thomas Holland, to be printed in *Proceedings*.

No. 13. 29-8-1923.

Invitation to the Society to send representatives to the meeting of the Bangiya Sahitya Sammilan at Naihati. MM. Hara Prashad Shastri to be invited.

No. 5. 27-6-1923.

Invitation from a combination of Learned Societies in America to send representatives to be present in the Joseph Leidy Commemoration Meeting, in Philadelphia, in December, 1923. General Secretary to endeavour to arrange for personal representation, otherwise to write suitable letter.

No. 7. 25-7-1923.

Invitation from the Organising Committee Colonial Week, Naples, September, 1923, to send representatives to the Meetings, to be declined, the purposes of the meeting being outside the scope of the Society's activities.

No. 15. 29-8-1923.

EXCHANGE—

Requests for exchange with the Society's publications—

1. Hamburg University; order: Journal, Memoirs.
2. Poona Oriental Society; order: Journal, Memoirs.
3. Topographical Survey, Java; order: Journal, Memoirs.
4. Bombay University Library; order: decline.
5. Lloyd Library, Ohio; order: decline.
6. Dept. Agriculture, Canada; order: decline.
7. State University, Tashkent, Turkestan; order: Journal.

No. 12. 28-3-1923.

Cama Institute, Bombay; order: Journal.

No. 14. 25-4-1923.

Peking University; order: Journal.

Editor Narodna Starina; order: Journal.

No. 8 (1,2.) 27-6-1923.

Visva Bharata Magazine; order: Journal.

No. 9. 29-7-1923.

Alibag Magnetic Records, Bombay; order: Journal.

No. 7. 19-12-1923.

FELLOWS—

Recommendations, Meeting Fellows, held on January, 31st, recommending the election of Mr. Khuda Bukhsh and Dr. G. N. Mookerji, adopted.

No. 11. 31-1-1923.

Report General Secretary that no valid nominations have been received for the present year; to be recorded.

No. 17. 19-12-1923.

FINANCE—

Mr. Johan van Manen to be paid Rs. 500 per mensem.

No. 2. 31-1-1923.

Further instalment payment Messrs. Sudlow and Ballardie. To be circulated to Council.

No. 8. 28-3-1923.

Payment Messrs. Sudlow and Ballardie. The General Secretary to write in terms indicated.

No. 12. 25-4-1923.

Bill Messrs. Sudlow and Ballardie. Correspondence and payment approved.

No. 1. 30-5-1923.

Fire Insurance Policy on building and contents. To be revised.

No. 4. 25-4-1923.

Unspent portion of assets in Oriental Publication Fund No. 2 to be utilised as much as possible before November, 1923.

No. B2. 25-7-1923.

A fixed percentage of the grant for Oriental Publication Fund No. 2 to be debited as share in general administrative expenses.

B2. 25-7-1923.

Enhancement assessment Municipal Taxes. The General Secretary to act on advice to be asked from Sir Asutosh Mukherji.

No. 11. 29-8-1923.

The question of reviving the monthly allowance to M. M. Haraprasad Shastri in view of his labours on the Catalogue of Sanskrit MSS., to be set forth in a memorandum to be circulated to Council.

No. 5. 14-11-1923.

Statement Treasurer assets, actual and nominal, liquid and fixed ; noted.

No. 8. 14-11-1923.

INDIAN SCIENCE CONGRESS—

The General Secretary to represent the Society on the Executive Committee of the Indian Science Congress for 1924.

No. 4. 28-2-1923.

Recommendations Prof. Raman to approve certain changes in the Indian Science Congress Rules. Approved.

No. 8. 28-2-1923.

Publication Proceedings Tenth Indian Science Congress, sanctioned.

No. 20. 29-8-1923.

LOAN OF MSS.—

Request, Mr. Harley, for the transfer to another, of two MSS. issued in his name. Sanctioned provided in accordance with Rules.

No. 9. 28-2-1923.

Request loan Persian MS. Prof. Woolner. Sanctioned subject to Rules.

No. 10. 28-2-1923.

Representation Dr. F. W. Thomas, pressing for a reversion of a decision of Council not to lend a Sanskrit MS. which he applied for. To be circulated to Council.

No. 13. 28-2-1923.

Letter Dr. Thomas (No. 13—28-2-23). Loan sanctioned.

No. 6. 28-3-1923.

Request by Visvabharata Institute, Santiniketan, for loan of five Mahabharata MSS. Further details to be asked for.

No. 7. 28-3-1923.

Request by Committee, Cold Weather Exhibition, Calcutta, for the loan of certain MSS. To be declined.

No. 8.

29-8-1923.

Requests for loan of MSS. by the India Office (Dr. Thomas) and the Punjab University Library. To be granted with observation of usual formalities and against suitable security.

No. 9.

19-12-1923.

MISCELLANEOUS—

Letter from Dr. T. O. D. Dunn offering suggestions to the Society in the matter of encouragement of Historical Research in Bengal.

Adopted.

No. 4.

31-1-1923.

Application, Automobile Association of Bengal, requesting use of lecture hall for their General Meeting on February 23rd, 1923.

Granted.

No. 5.

31-1-1923.

Appointment Mr. C. F. Brown as Honorary Numismatist. Confirmed.

No. 7.

31-1-1923.

Coins offered for sale by Curator, Central Museum, Lahore. No coins to be bought.

No. 18.

25-4-1923.

Report on alleged losses of, and damage to, Persian and Arabic MSS. To be submitted to Council.

A 4.

25-7-1923.

Telephone connection, sanctioned.

No. 12.

29-8-1923.

Letter Director, Zoological Survey, drawing attention to certain statements in the Triennial Report of the Zoological Survey of India for the years 1920-1923. The General Secretary to address Government officially on the subject.

No. 16.

29-8-1923.

The General Secretary instructed to consider proposals received to rent out a portion of the grounds belonging to the Society.

No. 17.

29-8-1923.

On proposal by the President, seconded by Sir Asutosh Mukherji, the Council put on record their sense of appreciation of M. M. Haraprasad's valuable work on the Catalogue of Sanskrit Manuscripts. The resolution to be forwarded to the Shastri.

No. 5.

14-11-1923.

Letter last year's Prize-man, Elliott Prize, asking for cash instead of medal. To be given effect to.

No. 18.

19-12-1923.

Petition. Jemadar Automobile Association of Bengal to be allowed to set up a small shop in the Society's Compound. Declined.

No. 10.

19-12-1923.

PRESENTATIONS—

Presentation by Mr. Sasadhar Roy of a photograph of Louis Pasteur. To be accepted with thanks.

No. 9.

28-3-1923.

Presentation, by Sir Rajendra Nath Mookerjee, of a marble pedestal for the bust of Csoma de Körös. To be accepted with thanks to the donor.

14-11-1923.

Presentation to the Society's Library of nine Arabic and Persian MSS. by Mr. Aga Muhammad Kazim Shirazi. Accepted with thanks to donor.

No. 8.

19-12-1923.

PUBLICATIONS—

Request by Curator, Central Museum, Lahore, for insertion of a review in the Society's Journal of the newly published Catalogue of Paintings in the Museum. No books reviews to be given in *Journal*.
No. 19. 25-4-1923.

The question of the procedure to be followed in dealing with papers submitted to the Society for publication. Sir Asutosh Mukherjee to submit a draft of satisfactory Rules.

No. 11.

27-6-1923.

Resolved that no "opinion" on papers submitted to the Society for publication be communicated to the authors of such papers.

B. 10.

25-7-1924.

Request Prof. Visvanath to withhold publication of his paper on "The development of the Ovary of *Culex*," with offer to indemnify expenses incurred. To be allowed.

A. 3.

25-7-1923.

Major Sewell's papers on Oceanography in Indian Waters to be accepted for publication, and a separate volume of the Memoirs to be reserved for their publication.

No. 7.

14-11-1923.

Request progress publications, by General Secretary, under the headings of *Journal*, *Memoirs*, *Bibliotheca Indica*, Catalogues, Price lists. Noted.

No. 5.

14-11-1923.

Progress Shivaparinayah, edited by Sir George Grierson, approved.

No. 8.

31-1-1923.

Letter from Mr. Harley offering his edition of the Musnad of Umar bin Abdul Aziz for publication in the Bibliotheca Indica. Accepted.

No. 9.

28-2-1923.

Letter from Mr. Harley, suggesting the continuation of Prof. Hedayet Hussain's edition of Ma'asir-i Rahimi. Accepted.

No. 9.

28-2-1923.

The General Secretary to submit a note on the general policy as to the publications of the Society, including the Bibliotheca Indica.

No. 9.

28-2-1923.

English translation of Badaoni's Muntakhabu-t-tawarikh, Vol. II, to be reprinted with typographical corrections but without revision.

No. 10.

30-5-1923.

Report General Secretary concerning the Bibliotheca Indica. Adopted.

A. 2.

25-7-1923.

The General Secretary to draw up a memorandum showing the works which should be completed or continued, also a statement as to commitments and assets.

B. 3.

25-7-1923.

The General Secretary to investigate and report concerning a proposed reprint, by the Society, of Tawney's translation of the Katha Sarit Sagara and to continue preliminary discussions with Prof. MacDonnell and Prof. Woolner.

B. 4.

25-7-1923.

Reprint *Katha Sarit Sagara*. The Society to reprint without revision in same style and at same price as of first edition; previous arrangements to stand.

No. 14.

19-12-1923.

Revised edition of Blochmann's translation of *Ain-i-Akbari* to be arranged. Col. Phillott to be approached concerning this matter.

B. 5.

25-7-1923.

Request Dr. Farquahar to be allowed to purchase a fascicle of *Ashtasahasrika Prajnaparamita*, of which the number of copies in stock is reduced to the minimum of reserve copies fixed by rule, namely six. Not to be granted.

No. 13.

28-3-1923.

Sale of copies of old publications. Sub-Committee to be formed consisting of President, Treasurer, General Secretary, Sir Asutosh Mukherji and Dr. Christie.

No. 8.

25-4-23.

Questions of Prices of publications, commission, annual bulk of *Journal* and *Memoirs* to be referred to Sub-Committee appointed on 15-4-1923. sub S.

No. 9.

25-4-1923.

Considered a memorandum by the General Secretary concerning the unsatisfactory condition of the sale of books by the Society. The General Secretary to put up proposals in writing. The Cashier to be reprimanded for neglect.

No. 3.

28-2-1923.

Proposals General Secretary with reference to publications of the Society as follows:

1. Stock to be taken of all saleable goods.
2. Pass-system to be introduced and stock-book to be kept up daily.
3. Stock to be re-arranged, separating copies to be reserved for sale in complete sets from copies to be sold separately. Close watch to be kept against loose numbers being sold unevenly so as to spoil complete sets.
4. Numbers to be reprinted which would complete a sufficient number of sets to make income warrant costs.
5. Prices to be fixed for all publications on a practical and consistent basis.
6. Such further racks to be installed in stock rooms as may be called for.
7. All stock keeping and checking to be in the hands of a special registrar.
8. Uniform discount to be given. Present system of discrimination between orders over and below Rs. 40 to be discontinued.
9. Discount to be allowed on all publications to accredited book-sellers.
10. Modern business methods of advertising to be applied. Publications to be made known by compilation and active distribution of correct and up-to-date price lists giving full information.
11. Systematic completion of title-pages, indexes and similar matter for old works, otherwise completed, to be sanctioned.
12. Policy to be adopted always to sanction publication of a work as a whole, but never, or only for very special reasons, in part and never fascicle by fascicle, year by year.
13. A fixed percentage of all returns, say 25%, to be set apart as a regular reserve fund for reprinting works sold out, which ought to be reprinted.
14. Policy to be adopted of keeping up the book-stock and not to let it deplete itself by mere inattention.

15. The numbers of copies to be printed of works and periodicals to be periodically revised, and to be fixed in consideration of demand and number of copies to be despatched in the first instance.
16. The General Secretary to be the Business Manager for publications and sales.
17. Mr. Ivanov's Catalogue of Persian Manuscripts to be published during the year. Remuneration Rs. 2 per page.
18. Library Catalogue of printed books to be brought up-to date and published.
19. Supplement to list of Arabic and Persian MSS. acquired since publication of the latest list to be compiled and published.
20. So-called class lists, *i.e.*, selected bibliographies on given subjects, of all matter contained in the collections of the Society to be initiated, compiled and published.
21. Complete bibliography of the Society's publications to be compiled and published, for use both from a technical and from a business stand-point.
22. Card index system for names, addresses and filing to be introduced. Points 1-22 all adopted.

No. 10.

28-3-1923.

Revised rules concerning sales, subscriptions and prices, submitted by General Secretary.

A. JOURNAL.

1. The six most complete sets of available numbers to be made up, to be segregated from the general stock, packed separately, and inventorised.
2. Complete volumes to have precedence for sale over loose numbers, and sets over loose volumes.
3. Three years after publication no complete volume to be broken for sale of loose number.
4. Price of single numbers old series minimum Rs. 2-8.
5. Reserve to be made in future : 6 copies of all publications for the Society's use; 30 copies for sale in sets.
6. Average standard for annual volume *Journal* 50-60 formes of 16 pages and 12 plates.
7. Prices of loose numbers *Journal* on the basis of 6 annas per forme of 16 pages and per plate, map, table, etc., not in the text.
8. Annual subscription, if prepaid, Rs. 24, free of postage.

B. MEMOIRS.

1. Average standard for complete volumes of the *Memoirs* 35 formes of 16 pages (560 page) and 12 plates, maps, tables, etc., not in the text.
2. Prices of loose numbers on the basis of 9 annas per forme of 16 pages and per plate, etc.
3. Subscription per volume, prepaid, Rs. 24, free of postage.

DISCOUNTS : ON ALL PUBLICATIONS.

1. 25% to approved book-sellers.
2. 30% to Agents, with obligation to accord at least 10% to book-sellers in their countries.
3. 25% to members

GENERAL.

1. Government and Public Bodies, Institutions, Libraries, etc., to receive *Journal* and *Memoirs* together as heretofore (if old subscribers) for Rs. 24, like Mofussil Members.

2. Prices for complete volumes *Journal* (without Proceedings) old series at a flat rate of Rs 20 and if in sets of more than seven volumes at a time, Rs. 15 per volume.

3. Complete volumes new series at Rs. 24 a volume.

Adopted.

A. 6.

25-7-1923.

Price of fascicles *Bibliotheca Indica*, demy octavo size, oriental texts, to be annas 12, for each 96 pages or part of 96 pages.

No. 5.

14-11-1924.

REQUESTS—

Request by Mr. Butterworth for permission to use extracts from the Society's publications for a proposed anthology. Granted on condition that suitable acknowledgment be made.

No. 8.

29-7-1923.

Request by Bombay University to receive gratis a set of the publications of the Society. *Journal* and *Memoirs* to be presented; *Bibliotheca Indica* against payment.

No. 18.

29-8-1923.

Letter Sir Richard Temple, requesting insertion notice in *Journal*, on behalf of the *Indian Antiquary*; declined with regrets, on ground no suitable provision in *Journal*.

No. 6.

19-12-1923.

RULES—

Codification conflicting terminology Rules connected with Secretary, General Secretary, Honorary Secretary, Council Membership and other matters, to be referred to a Sub-Committee consisting of the President, Sir Asutosh Mukherji and the Treasurer.

No. 4.

14-11-1923.

The wording of Rule 44(g) to be considered by the Sub-Committee constituted sub 4 in the Council Meeting held on 14-11-1923.

No. 9.

14-11-1923.

Rules for the Election of Fellows to be considered by the Sub-Committee constituted sub 4 in the Council Meeting held on 14-11-1923.

No. 10.

14-11-1923.

STAFF—

Resignation tendered by the Assistant Secretary, J. C. Hyrapiet.

Accepted.

No. 2.

31-1-1923.

Increase of pay sanctioned to Maulavi Shah Moinuddin Ahmad, travelling Maulavi Arabic and Persian Search Department.

No. 3.

31-1-1923.

Application Travelling Maulvi (No. 3 dated 31-1-1923).

Initial date of increment revised to February, 1922.

No. 12.

28-2-1923.

Application Typist for increase of pay. Consideration postponed.

No. 3.

31-1-1923.

Letter of termination of appointment to be sent to Typist, on account of protracted absence without notice. New typist to be appointed on Rs. 60.

No. 6.

25-7-1923.

Appointment new Typist on salary of Rs. 60, approved.

No. 2.

29-8-1923.

Application Menial Staff for increase of pay. Consideration postponed.

No. 3. 31-1-1923

Petition Jamadar for increase of pay. To be inquired into.

No. 1. 25-4-1923.

Petitions increase of pay by Typist, and Durwan; to be rejected; the question of revision of pay to be brought up as a general question next year.

No. 11. 19-12-1923.

Petition Menials to be provided with new turbans. Sanctioned.

No. 1. 28-3-1923.

Petition Bearers for new uniforms. General Secretary authorised to make suitable arrangements in this and similar cases, including provision of umbrellas to Chaprasis.

No. 14. 25-7-1923.

Pension to the late Resident Pandit Mathura Nath Majumdar.

Order. (1) Superannuation pension not to be given ordinarily for less than 20 years' service.

(2) As a special case invalid pension of Rs. 10 per mensem granted from date of termination of salary.

No. 6. 31-1-1923.

Cashier's commission on money received for sales of books to be converted into fixed bonus, for three months tentatively, to be conditional for continuation on satisfaction given.

No. 7. 25-4-1923.

The Cashier's work to be restricted to book-keeping and cash-keeping. No extraneous work of correspondence, no collecting of subscriptions Extra bonus or commission to be withdrawn. Salary to be Rs 90.

No. 8. 30-5-1923.

Office duties formerly performed by Cashier to be arranged for by the Business Committee.

No. 8. 30-5-1923.

The Cashier to be given option to offer his resignation, and if offered by him, to receive six months' pay in view of long service.

The Business Committee to make suitable arrangement in connection with the above.

No. 1. 4-7-1923.

Resignation Cashier, accepted.

No. 4. 25-7-1923.

Definition duties new Cashier. The Cashier in future to be responsible for the accounts, the collection of subscriptions, etc., the sale and distribution of publications, and such other duties as may be assigned to him by the General Secretary. Initial pay Rs. 100. Appointment to be re-considered at end of financial year. Together with permanent appointment the question of security to be considered.

B. 1. 25-7-1923.

The Collecting Sircar to be dismissed.

No. 8. 30-5-1923.

An additional Clerk to be appointed for the remainder of the financial year.

No. 7. 30-5-1923.

A Clerk to be appointed to deal with general office work. Initial pay Rs. 60.

Appointment to be re-considered at end of financial year.

No. B. 1. 25-7-1923.

- Application leave Pandit Sasadhar Bannerji. Rules to be applied.
No. A. 5. 25-7-1923.
- Petition Jamadar for two months full pay during absence on leave in May and June. Sanctioned as a special case without force of precedent.
No. 1. 29-8-1923.
- General Memorandum on question of leave to staff to be submitted by General Secretary to Council.
A. 5. 25-7-1923.
- The General Secretary to put up concrete proposals with reference to holidays for office staff.
B. 8. 25-7-1923.
- Petition leave Jamadar; granted for one month, without pay.
No. 12. 19-12-1923.
- Petition Muhammadan staff, for 3 extra holidays in connection with the Muharram festival, granted this year without prejudice for the future.
No. 13. 25-7-1923.
- Temporary appointment temporary Clerk as Catalogue Assistant, arising out of Council Order No. 23 dated the 25th February, 1923, sanctioned. Appointment of present incumbent to terminate. Librarian and General Secretary to make new arrangements. Relative grants and sanction to stand.
No. 5. 25-7-1923.
- Appointment additional cleaner; sanctioned.
No. 3. 19-12-1913.

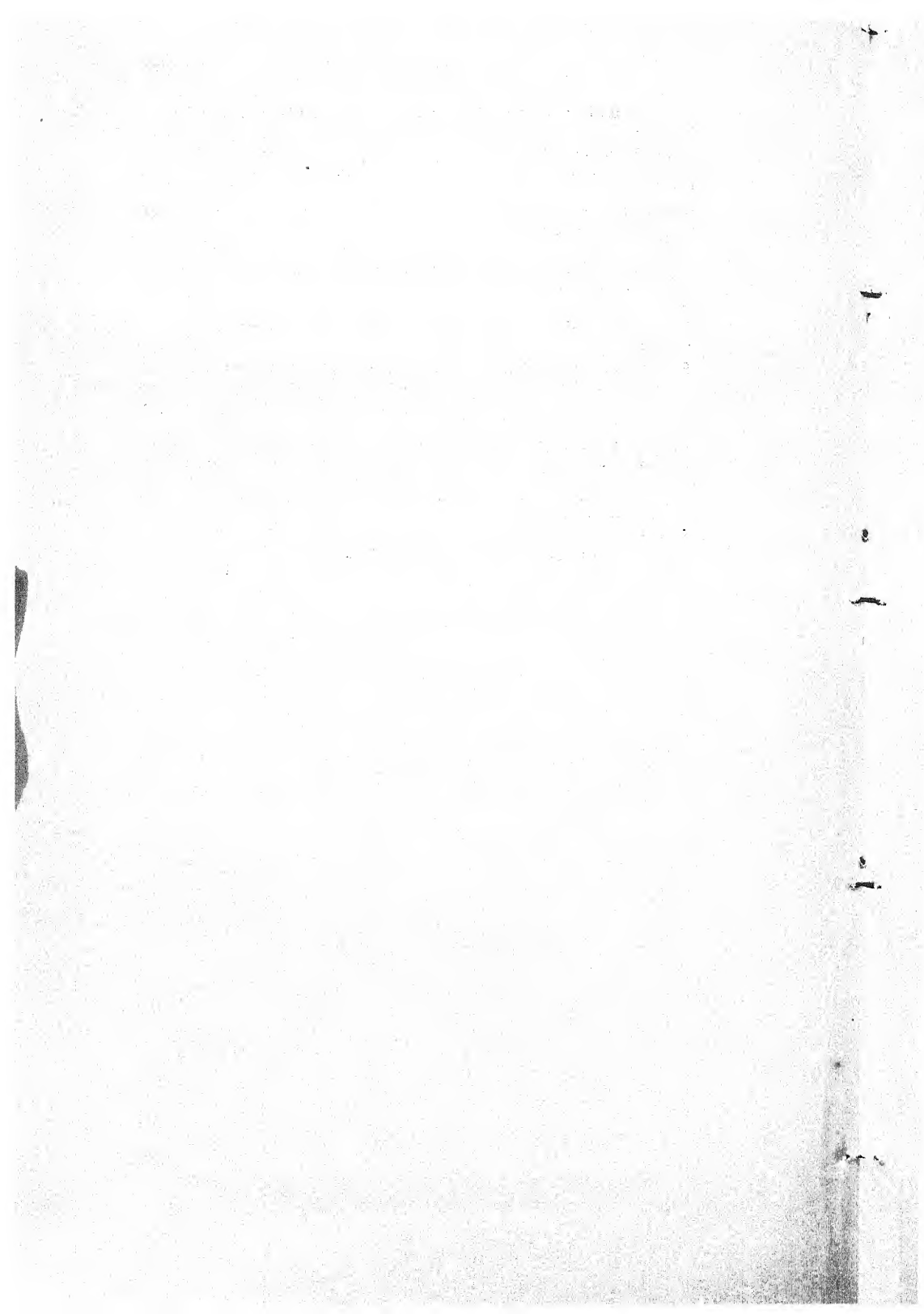
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List of
Officers, Council Members, Members,
Fellows and Medallists
of the
Asiatic Society of Bengal

On the 31st December, 1923.

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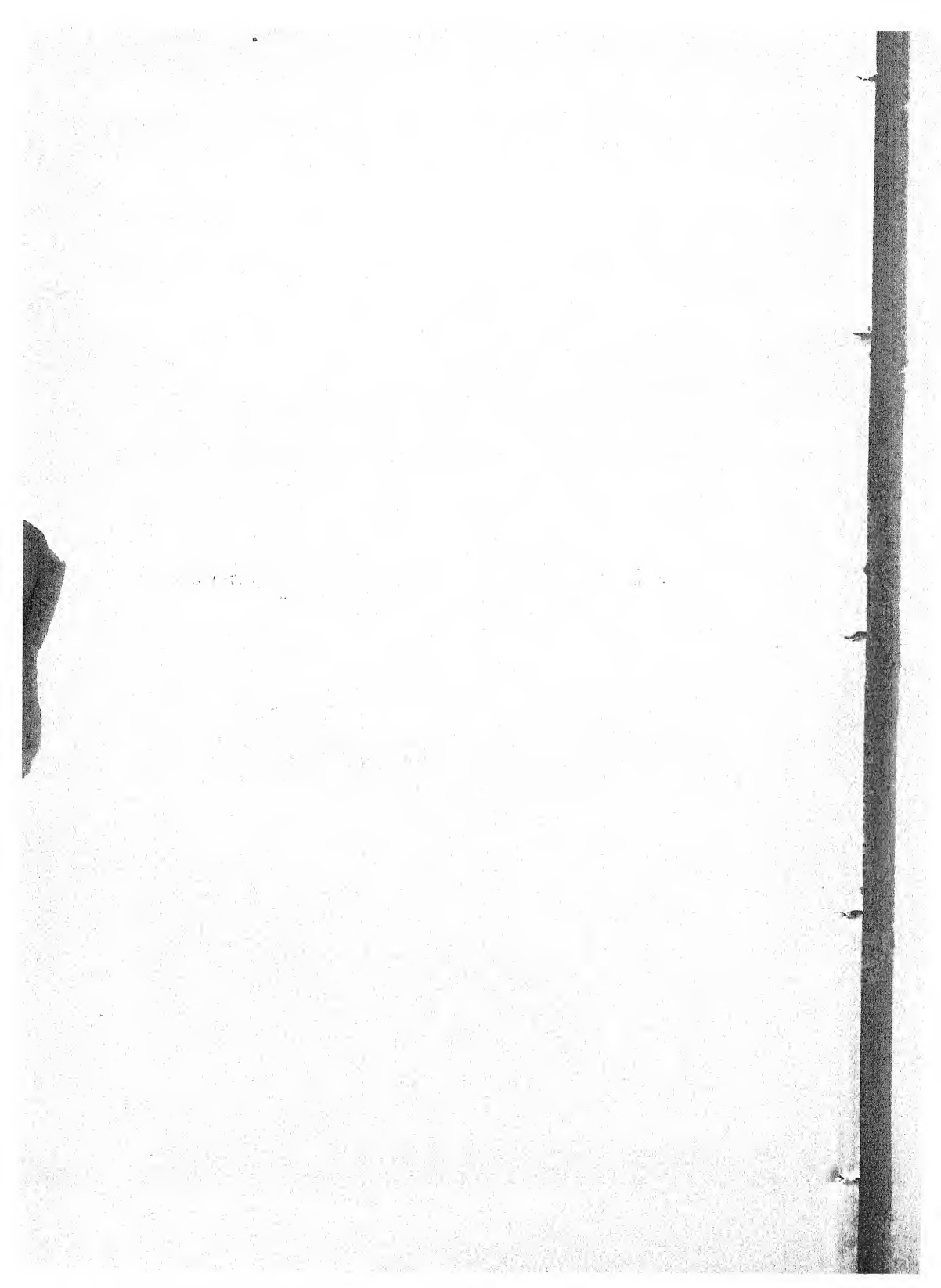
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OFFICERS AND MEMBERS OF COUNCIL OF THE
ASIATIC SOCIETY OF BENGAL FOR
THE YEAR 1923.

President.

N. Annandale, Esq., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B.,
F.R.S.E.

Vice-Presidents.

The Hon. Justice Sir Asutosh Mukhopadhyaya, Kt., C.S.I.,
D.L., D.Sc., F.R.S.E., F.R.A.S., F.A.S.B.

Mahamahopadhyaya Haraprasad Shastri, C.I.E., M.A.,
F.A.S.B.

J. Coggin Brown, Esq., F.G.S., D.Sc., F.C.S., F.A.S.B.

Lieut.-Col. J. D. W. Megaw, C.M.S.

Secretaries and Treasurer.

General Secretary :—Johan van Manen, Esq.

Treasurer :—C. V. Raman, Esq., M.A.

Philological Secretary :—D. R. Bhandarkar, Esq., M.A., Ph.D.,
F.A.S.B.

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W. A. K. Christie, Esq., B.Sc., Ph.D., F.A.S.B.

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ASIATIC SOCIETY OF BENGAL ELECTED
FOR THE YEAR 1924.

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LIST OF ORDINARY MEMBERS.

R.=Resident. N.R.=Non-Resident. A.=Absent. L.M.=Life Member.
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An Asterisk is prefixed to the names of the Fellows of the Society.

N.B.—Members who have changed their residence since the list was drawn up are requested to give intimation of such a change to the General Secretary, in order that the necessary alteration may be made in the subsequent edition. Errors or omissions in the following list should also be communicated to the General Secretary.

Members who are about to leave India and do not intend to return are particularly requested to notify to the General Secretary whether it is their desire to continue Members of the Society; otherwise, in accordance with Rule 40 of the rules, their names will be removed from the list at the expiration of three years from the time of their leaving India.

| Date of Election | | |
|------------------|------|---|
| 1922 April 5. | R. | Abdul Ali, Abul Faiz Muhammad, M.A., M.R.A.S., F.R.S.L., etc. 3, <i>Turner Street,</i> <i>Calcutta.</i> |
| 1919 Feb. 5. | N.R. | Abdul Kader Surfraz. <i>Elphinstone Col-</i> <i>lege, Bombay.</i> |
| 1909 Mar. 3. | R. | Abdul Latif, Syed, Khan Bahadur, B.A., B.L., Asst. Secretary to the Government of Bengal, Revenue Dept., Writers' Buildings, Calcutta. 32/1, <i>Upper Cir-</i> <i>cular Road, Calcutta.</i> |
| 1894 Sept. 27. | L.M. | Abdul Wali. Khan Sahib. 3, <i>Alimuddin</i> <i>Street, Calcutta.</i> |
| 1921 Mar. 2. | R. | Acton, Major Hugh William, M.R.C.S., L.R.C.P. (Lond.), I.M.S. <i>School of Trop-</i> <i>ical Medicine and Hygiene, Central</i> <i>Avenue, Calcutta.</i> |
| 1921 Mar. 2. | R. | Agharkar, Shankar Purushottam, M.A., Ph.D., F.L.S., Professor of Botany, Cal- cutta University. 35, <i>Ballygunge</i> <i>Circular Road, Calcutta.</i> |
| 1915 Feb. 3. | N.R. | Ahmad Ali Khan, Hafiz, Controller of Household and Officer in Charge of State Library. <i>Rampur State, U.P.</i> |
| 1920 Jan. 7. | N.R. | Aiyer, S. Paramesvara, M.A., B.L., M.R.S.L., M.F.L.S., M.E.I.A., Kavitalaka, Secretary |

| Date of Election. | | |
|-------------------|------|---|
| | | to the Government of Travancore. <i>Trivandrum, South India.</i> |
| 1923 April 4. | R. | Alker, A., Merchant, 4 Bankshall Street, <i>Calcutta.</i> |
| 1919 July 2. | R. | Amin-ul-Islam, Khan Bahadur, Nawab- zada, B.L. <i>Inspector-General of Regis- tration, Bengal.</i> |
| 1912 July 3. | N.R. | Andrews, Egbert Arthur, B.A. <i>Tooklai Experimental Station, Cinnamara P.O., Jorhat, Assam.</i> |
| 1904 Sept. 28. | L.M. | *Annandale, Nelson, C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., Director, Zoolog- ical Survey of India. <i>Calcutta.</i> |
| 1911 May 3. | R. | Atkinson, Albert Charles. <i>La Martinière, 11, Loudon Street, Calcutta.</i> |
| 1904 July 6. | N.R. | Aulad Hasan, Khan Bahadur, Sayid. <i>Rajar Deori, Dacca.</i> |
| 1917 April 4. | N.R. | Awati, P. R., M.A., Medical Entomologist. Central Research Institute. <i>Kasauli.</i> |
| 1914 Mar. 4. | L.M. | Bacot, J. 31, <i>Quai d'Orsay, Paris.</i> |
| 1870 Feb. 2. | L.M. | Baden-Powell, Baden Henry, M.A., C.I.E. <i>Ferlys Lodge, 29, Banbury Road, Oxford, England.</i> |
| 1919 April 2. | R. | Bal, Surendra Nath, Ph.C., M.Sc., F.L.S., Curator, Industrial Section, Indian Museum. 1, <i>Sudder Street, Calcutta.</i> |
| 1920 Mar. 3. | R. | Ballardie, J. H. de Caynoth, A.R.I.B.A. 7, <i>Old Court House Street, Calcutta.</i> |
| 1918 Feb. 6. | N.R. | Banerjee, Narendra Nath, M.I.P.O.E.E. (Lond.), A.M.I.E. (Ind), Divisional Engineer, Telegraphs. <i>Mandalay, (Burma).</i> |
| 1922 April 5. | N.R. | Banerjee, Sasadhar, B.A., Head Master, H. E. School, Gopalganga <i>Gopalganj P. O., Bihar.</i> [Calcutta. |
| 1905 Mar. 1. | R. | Banerji, Muralidhar. <i>Sanskrit College,</i> |
| 1919 July 2. | R. | Banerji, Pramathanath, M.A., D.Sc. <i>Cal- cutta University, Calcutta.</i> |
| 1919 July 2. | R. | Banerji, Pramathanath M.A., B.L., Vakil, High Court. <i>Calcutta.</i> |
| 1907 Jan. 2. | R. | Banerji, Rakhal Das. M.A. 65, <i>Simla Street, Calcutta.</i> |
| 1923 Feb. 7. | R. | Barber, Cecil Thomas, Asst. Supdt., Geological Survey of India. <i>Calcutta</i> |
| 1898 Mar. 2. | N.R. | Barnes, Herbert Charles, M.A. (Oxon.), C.I.E. <i>Gauhati, Assam.</i> |
| 1909 July 7. | N.R. | Bazaz, Rangnath Khemraj, Proprietor, |

| Date of Election. | | Shri Venkateshwar Press. 7th <i>Khetwadi, Bombay No. 4.</i> |
|-------------------|------|---|
| 1895 July 3. | L.M. | Beatson-Bell, The Hon. Sir Nicholas Dodd, B.A., C.I.E., I.C.S., Chief Com- missioner of Assam. <i>Shillong.</i> |
| 1915 April 7. | N.R. | Belvalkar, Sripad Krishna, M.A., Ph.D., Prof. of Sanskrit, Deccan College. <i>Poona.</i> |
| 1909 April 7. | R. | Bentley, Charles A., M.B., D.P.H. <i>Writers'</i> <i>Buildings, Calcutta.</i> |
| 1876 Nov. 15 | F.M. | *Beveridge, Henry, F.A.S.B., I.C.S. (Re- tired.) 53, <i>Campden House Road,</i> <i>W. 8, London.</i> |
| 1917 Aug. 1. | R. | *Bhandarkar, Devadatta Ramkrishna, M.A. 35, <i>Circular Road, Ballygunge.</i> |
| 1909 July 7. | R. | Bhattacharji, Shib Nath, M.B. 80, <i>Sham-</i> <i>bazar Street, Calcutta.</i> |
| 1908 Nov. 4. | R. | Bhattacharya, Bisvesvar, B.A., M.B.A.S., B.C.S. 16, <i>Townshend Road, Bhawani-</i> <i>pore, Calcutta.</i> |
| 1922 Feb. 1. | N.R. | Bhattacharya, Vidushekhara, Prof., <i>Visvabharati. Santiniketan, Birbhum.</i> |
| 1922 June 7. | R. | Bhattacharyya, Dr. Sivapada, M.D. <i>School of Tropical Medicine, Calcutta.</i> |
| 1923 May 2. | R. | Bhukhanvala, R. M. A., Merchant, Partner of Bhukhanvala & Sons. 10, <i>Canning</i> <i>Street, Calcutta.</i> |
| 1923 Aug. 1. | R. | Biswas, Kalipada M.A., Botanical Labor- atory, College of Science, 35, <i>Ballyganj</i> <i>Circular Road, Calcutta.</i> |
| 1922 Dec. 6. | N.R. | Blackett, Sir Basil Phillot, R.C.B., Finance Member, Government of India. <i>Delhi</i> <i>and Simla.</i> |
| 1893 Feb. 1. | L.M. | Bodding, Revd P. O. <i>Dumka, Sonthal</i> <i>Parganas.</i> |
| 1912 July 3. | R. | Bomford, Capt. Trevor Lawrence. I.M.S., M.B., B.S., M.R.C.S., L.R.C.P. <i>Eden Hos-</i> <i>pital, Calcutta.</i> |
| 1919 June 6. | R. | Bose, Ajit Mohan, M.B., Ch.B. (Edin.), L.M. (Dub.). 92/3, <i>Upper Circular Road,</i> <i>Calcutta.</i> |
| 1898 Feb. 2. | R. | Bose, Amrita Lal, Dramatist. 9-2, <i>Ram</i> <i>Chandra Maitra Lane, Calcutta.</i> |
| 1895 Mar. 6. | R. | *Bose, Sir Jagadis Chandra, Kt., C.S.I., M.A., D.Sc., C.I.E., F.A.S.B. <i>Presidency College,</i> <i>Calcutta.</i> |
| 1922 Apl. 5. | N.R. | Bose, Jogesh Chandra, Landholder <i>Contai, Midnapore.</i> |

| Date of Election. | | |
|-------------------|------|---|
| 1917 Oct. 3. | N.R. | Bose, Satyendra Nath, M.Sc. Prof., Dacca University, <i>Ramna, Dacca.</i> |
| 1920 Mar. 3. | N.R. | Bosworth-Smith, Percy. F.G.S., M.I.M.M., M.A.I.M.E. <i>Kolar Gold Field, Mysore State, Oorgaum P.O., South India.</i> |
| 1910 July 6. | N.R. | Botham, Arthur William, I.C.S. <i>Shillong.</i> |
| 1908 Jan. 1. | R. | *Brahmachari, Upendra Nath, M.A., Ph.D., M.D., F.A.S.B. 82/3, <i>Cornwallis Street, Calcutta.</i> |
| 1920 Feb. 4 | N.R. | Brij Narayan, M.A., F.R.Hist.S., M.R.A.S. 8, <i>Bank Road, Allahabad.</i> |
| 1907 July 3. | R. | *Brown, John Coggin, O.B.E., D.Sc., F.G.S., M.I.M.E., M.Inst.M.M., M.I.E. (Ind.), F.A.S.B., Geological Survey of India. 27, <i>Chowringhee, Calcutta.</i> |
| 1909 Oct. 6. | R. | Brown, Percy, A.R.C.A. <i>Government School of Art, Calcutta.</i> |
| 1909 Oct. 6. | R. | *Brühl, Paul Johannes, I.S.O., D.Sc., F.C.S., F.G.S., F.A.S.B. 35, <i>Ballygunge Circular Road, Calcutta.</i> |
| 1901 June 5. | F.M. | *Burkill, Isaac Henry, M.A., F.A.S.B. <i>Botanic Gardens, Singapur.</i> |
| 1896 Jan. 8. | N.R. | *Burn, Richard. C.I.E., I.C.S., F.A.S.B. <i>Board of Revenue, Allahabad, U.P.</i> |
| 1900 May 2. | N.R. | Butcher, Flora, L.M.S., Tanakpur Medical Mission. <i>Tanakpur, Rohilkhand Kumaon Ry., U.P.</i> |
| 1913 Apl. 2. | R. | Calder, Charles Cumming. <i>Royal Botanic Gardens, Sibpur, Howrah.</i> |
| 1918 July 3. | R. | Campos, Joachim Joseph, M.B. 16/2, <i>Royd Street, Calcutta</i> |
| 1915 Jan. 6. | A. | Carter, Humphry G., M.B., Ch.B. <i>Botanic Gardens, Cambridge, England.</i> |
| 1920 Sept. 1. | R. | Chakladar, Haran Chandra. 28/4, <i>Sahana-gar Lane, Kalighat, Calcutta.</i> |
| 1909 Mar. 3. | R. | Chakravarti, Nilmani, M.A. <i>Presidency College, Calcutta.</i> |
| 1920 Sept. 1. | R. | *Chanda, Ramaprasad, B.A., F.A.S.B. 37A, <i>Police Hospital Road, Calcutta.</i> |
| 1906 Jan. 3. | A. | Chapman, John Alexander. <i>Europe (c/o Imperial Library, Calcutta).</i> [Lucknow. |
| 1915 Oct. 27. | N.R. | Chatterjee, Atul Chandra, I.C.S. |
| 1911 June 7. | R. | Chatterjee, Karuna Kumar, F.R.C.S. 74, <i>Dharamtala Street, Calcutta.</i> |
| 1916 Jan. 5. | R. | Chatterjee, Khagendra Nath, B.A., B.L., Attorney-at-Law. 12, <i>Madan Mohan Chatterjee Lane, Calcutta.</i> |

| Date of Election. | | |
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| 1920 Sep. 1. | R. | Chatterjee, Nirmal Chandra. 52, <i>Haris Mukerjee Road, Bhowanipore, Calcutta.</i> |
| 1922 April 5. | R. | Chatterjee, Rakhahari, B.A., Student, Calcutta University. 7, <i>Lakshman Das Lane, Howrah.</i> |
| 1893 Sept. 28. | R. | *Chaudhuri, B. L., B.A., D.Sc. (Edin.), F.R.S.E., F.L.S. (Lond.). 120, <i>Lower Circular Road, Calcutta.</i> [<i>Calcutta.</i> |
| 1914 April 1. | R. | Chaudhuri, Gopal Das. 32, <i>Beadon Row,</i> |
| 1922 Feb. 1. | R. | Chopra, R. N., Major, I.M.S., Prof. of Pharmacology, School of Tropical Medicine. <i>Calcutta.</i> |
| 1907 July 3. | R. | *Christie, William Alexander Kynoch, B.Sc., Ph.D., M.Inst.M.M., F.A.S.B. <i>Geological Survey of India, Calcutta.</i> |
| 1909 Nov. 3. | N.R. | *Christophers, Major Samuel Richmond, M.B., F.A.S.B., I.M.S. <i>Research Laboratory, Kasauli.</i> |
| 1915 Sept. 1. | R. | Cleghorn, Maude Lina West, F.L.S., F.E.S. 12, <i>Alipur Road, Calcutta.</i> |
| 1923 May 2. | R. | Collenberg, Baron H. Rüd't von, German Consul-General. 2, <i>Store Road, Calcutta.</i> |
| 1920 Dec. 1. | R. | Connor, Lieut.-Col. F. P. 2, <i>Upper Wood Street, Calcutta.</i> |
| 1907 July 3. | A. | Cotter, Gerald de Purcell, B.A., F.G.S. <i>Europe (c/o Geological Survey of India).</i> |
| 1887 Aug. 25. | R. | Criper, William Risdon, F.C.S., F.I.C. A.R.S.M. <i>Konnaagar, E.I.R., Hughly, (Bengal).</i> |
| 1918 April 3. | N.R. | Das, Jagannath, B.A., Ratnakar, Kavisudhakar. <i>The Rajsadan, Ajodhya.</i> |
| 1923 June 6. | N.R. | Das, Kali, Superintendent, Forests. <i>Jubbhal State, P. O. Chopal, via Simla.</i> |
| 1915 Sept. 1. | R. | Das-Gupta, Hem Chandra, M.A., F.G.S., Prof., Presidency College. <i>Calcutta.</i> |
| 1922 Sept. 6. | N.R. | Das Gupta, Dr. Surendra Nath, Prof. of Sanskrit and Philosophy, Chittagong College. <i>Chittagong.</i> |
| 1917 April 4. | R. | Datta, Rasik Lal, D.Sc., F.C.S., F.R.S.E., Industrial Chemist, Dept. of Industries, Bengal. 78, <i>Manicktola St., Calcutta.</i> |
| 1895 Sept. 19. | R. | De, Kiran Chandra, B.A., C.I.E., I.C.S., Commissioner, Presidency Division, Bengal. <i>Theatre Road, Calcutta.</i> |
| 1917 June 6. | R. | Deb, Kumar Harit Krishna, M.A., Zemin-dar, Sobhabazar Rajbati. <i>Raja Nava-krishna Street, Calcutta.</i> |

| Date of Election. | | |
|-------------------|------|---|
| 1921 Sept. 7. | R. | Deb, Kumar Profulla Krishna, Zemindar and Landlord. 106 I, Grey Street, Calcutta. |
| 1906 Dec. 5. | N.R. | Dentith, Arthur William, I.C.S. Shillong. |
| 1910 May 4. | L.M. | Dhavl, Sankara Balaji, I.C.S., District and Sessions Judge. Cuttack. |
| 1920 Aug. 4. | R. | Dikshit, Kashinath Narayan, M.A., Superintendent, Archaeological Survey, Eastern Circle. Calcutta. |
| 1898 Jan. 5. | R. | Dods, William Kane, Agent, Hongkong and Shanghai Banking Corporation. Calcutta. |
| 1902 July 2. | R. | Doxey, Frederick. 63, Park Street, Calcutta. |
| 1909 Aug. 4. | N.R. | Drake-Brockman, Digby Livingstone, B.A., I.C.S. Jodhpur, Rajputana. |
| 1919 Nov. 5. | N.R. | Dube, Babool Mayeshanker. R. N. High School, Faithpur (Jaipur). |
| 1917 June 6. | R. | Dunn, Theodore Oliver Douglas, M.A., D.Litt. United Service Club, Calcutta. |
| 1920 April 7. | R. | Dutt, Kumar Krishna. 10, Hastings Street, Calcutta. |
| 1922 April 5. | N.R. | Dutta, Bhagad, Prof. and Supdt., Research Dept., Dayanand Anglo-Vedic College. Lahor. |
| 1921 Nov. 2. | N.R. | Emdadul, Haq Shah, M.L.C. Vill. Bhowksar, P.S. Chandina, P.O. Mudajargar. Dist. Tippera. |
| 1911 Nov. 1. | A. | Esch, V. J., Architect. Victoria Memorial Building, Cathedral Avenue, Maidan, Calcutta. |
| 1904 Aug. 3. | R. | *Fermor, Lewis Leigh, A.R.S.M., D.Sc., F.G.S., F.A.S.B. Geological Survey of India, Calcutta. |
| 1906 Oct. 31. | N.R. | Finlow, Robert Steel, B.Sc., F.I.C., Director of Agriculture, Bengal. Ramna P.O., Dacca. |
| 1913 Nov. 5. | R. | Fox, Cyril S., B.Sc., M.I.M.E., F.G.S. Geological Survey of India, Calcutta. |
| 1919 April 2. | N.R. | Friel, Ralph, I.C.S. Silchar, Assam. |
| 1923 Mar. 7. | R. | Fry, Lieut.-Colonel A. B. C.I.E., D.S.O., M.D. (Lond.) D.P.H., D.T.M. and Hy., M.R.C.S. (Eng.), L.R.C.P. (Lond.) I.M.S., Professor of Hygiene. School of Tropical Medicine, Calcutta. |

| Date of Election. | | |
|-------------------|------|--|
| 1922 April 5. | R. | Fülep, E. G., Merchant, Proprietor, E. G. Fülep & Co., Calcutta, Bombay and Hamburg. 5, <i>Mission Row, Calcutta.</i> |
| 1919 Feb. 5. | F.M. | Galoostian, Valarshak Mackertich. <i>P.O. Box 607, Sanger, California, U.S.A.</i> |
| 1919 Nov. 5. | N.R. | Gambhir, J. S. <i>Shamaldas College, Bhavnagar, Kathiawar.</i> |
| 1909 Oct. 7. | R. | Gangoly, Ordhendra Coomar, B.A. 12/1, <i>Gangoly Lane, Calcutta.</i> |
| 1912 Mar. 6. | R. | Ganguli, Manmohan, B.F. 50, <i>Raja Rajballav Street, Calcutta.</i> |
| 1920 Mar. 3. | N.R. | Ganguli, Captain P., I.M.S. <i>Rawalpindi.</i> |
| 1921 June 1. | R. | Ghatak, Prof. Joyotischandra. 5, <i>Bala ram Bose Ghat Lane, Bhowanipore, Calcutta.</i> |
| 1905 July 5. | R. | Ghosh, Amulya Charan, Vidyabhusana. 28, <i>Telepara Lane, Calcutta.</i> |
| 1918 Feb. 6. | R. | Ghosh, Ekendra Nath, M.D., M.Sc., F.Z.S., F.R.M.S., Prof. of Biology, Medical College. <i>Calcutta.</i> |
| 1920 May 5. | R. | Ghosh, Sukhendra Nath, B.A. (Cal.), B.Sc. (Glasg.), A.M.I.C.E., M.R.San.I., M.I.E. (Ind.). Executive Engineer, P.W.D., Bengal. 7, <i>Haysham Road, Calcutta.</i> |
| 1919 Feb. 5. | N.R. | Ghulam Mohiud-din Sufi. <i>Normal School, Anraoti.</i> |
| 1922 April 5. | N.R. | Goswami, Sarat Chandra, Supdt., <i>Normal School, Jorhat.</i> |
| 1920 July 7. | R. | Gourlay, Lieut.-Col., Charles Aikman, D.S.O., I.M.S., M.A., M.D. 16, <i>Alipore Park, South, Calcutta.</i> |
| 1910 Sept. 7. | M.R. | *Gravely, Frederic Henry, D.Sc., F.A.S.B. <i>Government Central Museum, Madras.</i> |
| 1905 May 3. | N.F. | Graves, Henry George, A.R.S.M. 52, <i>Carlington Road, Bedford, England.</i> |
| 1910 Mar. 2. | N.R. | *Greig, Major Edward David Wilson, M.B., F.A.S.B., I.M.S. <i>Simla.</i> |
| 1900 Dec. 5. | L.M. | Grieve, James Wyndham Alleyne. <i>C/o Messrs. Coutts & Co., 440, Strand, London, W.C. 2.</i> |
| 1917 June 6 | N.R. | Gupta, Kisorimohan, M.A., Prof. of History, M.C. College. <i>Sylhet, Assam.</i> |
| 1923 Mar. 7. | R. | Gupta, N., Bar.-at-Law, Calcutta Club. |
| 1919 Mar. 5. | N.R. | Gupta, Sivaprasad. <i>Seva Upavana, Benares City.</i> |
| 1915 Aug. 4. | R. | Gurner, Cyril Walter, I.C.S. <i>United Service Club, Calcutta.</i> |

| Date of Election. | | |
|-------------------|------|---|
| 1901 Mar. 6. | N.R. | Habibur Rahman Khan. <i>Raees. Bhikanpur. District Aligarh.</i> |
| 1892 Jan. 6. | F.M. | Haig, Lieut. Col. T. Wolseley. <i>C.M.G., Indian Army. H.B.M.'s Legation. Tehran. Persia.</i> |
| 1907 Aug. 7. | F.M. | *Haines, Henry Haselfoot. <i>C.I.E., F.C.H., F.L.S., F.A.S.B. Glen Ashton, Wimborne, Dorset.</i> |
| 1916 Jan. 5. | N.R. | Hamilton, C. J. <i>Patna University, Patna.</i> |
| 1920 May 5. | R. | Harcourt, Major E. S. <i>United Service Club, Calcutta.</i> |
| 1912 May 1. | R. | Harley, Alexander Hamilton. <i>M.A. The Madrasah, Calcutta.</i> |
| 1923 May 2. | R. | Harnett, Major. W. L. <i>I.M.S. Supdt, Campbell Hospital. Sealdah House, Lower Circular Road, Calcutta.</i> |
| 1908 April 1 | R. | Harrison, Edward Philip. <i>Ph.D., F.R.S.E. The Observatory, Alipar, Calcutta.</i> |
| 1921 May 4. | N.R. | Hartog, Philip Joseph. <i>C.I.E., M.A., B.Sc., Vice Chancellor, Dacca University. Ramna, Dacca.</i> |
| 1919 Nov. 5 | N.R. | Hemraj, Raj Guru. <i>Dhokadol, Nepal.</i> |
| 1911 June 7. | R. | Hidayat Husain, Shams-ul-Ulama Muhammad, Khan Bahadur, <i>Ph.D. 96/2c, Collin Street, Calcutta.</i> |
| 1920 Feb. 4. | N.R. | Hill, Harold Brian Cunningham. <i>Chabua P.O., Assam.</i> |
| 1911 April 5. | N.R. | Hiralal, Rai Bahadur, Dy.-Commissioner (Retired). <i>Craddock Town, Nagpur, C.P.</i> |
| 1891 July 1 | F.M. | *Holland, Sir Thomas H., <i>K.C.S.I., K.C.I.E., D.Sc., LL.D., F.R.S., F.A.S.B., Rector, Imperial College of Science and Technology. South Kensington, London, S.W. 7.</i> |
| 1921 Nov. 2. | R. | Hora, Sunder Lall. <i>Zoological Survey of India, Indian Museum, Calcutta.</i> |
| 1873 Jan. 2. | L.M. | Houstoun, George L., <i>F.G.S. Johnstone Castle, Renfrewshire, Scotland.</i> |
| 1923 June 6. | N.R. | Howard, A., Imperial Economic Botanist to the Government of India. <i>Pusa, Behar. [1971, Rangoon.</i> |
| 1918 Feb. 6. | N.R. | Hui, Rev. Sramana Wan. <i>Post Box No.</i> |
| 1923 June 6. | N.R. | Hutton, J. H., <i>I.C.S., D.C. Naga Hills and Hon. Director of Ethnography, Assam. Kohima, Naga Hills, Assam.</i> |
| 1911 Feb. 1. | R. | Insch, James. <i>C/o Messrs. Duncan Bros. & Co., 101, Olive Street, Calcutta.</i> |

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| 1920 Dec. 1. | R. | Ivanow, Wladimir. <i>C/o Asiatic Society of Bengal, 1, Park Street, Calcutta.</i> |
| 1921 Feb. 2. | R. | Jain, Chhote Lall, M.R.A.S. 53/1, <i>Burtolla Street, Calcutta.</i> |
| 1916 Jan. 5. | N.R. | Jain, Kumar Devendra Prasad, Secy., All-India Jain Association. <i>Arrah.</i> |
| 1910 Aug. 3. | R. | Jain, Podamraj Raniwalla. 9, <i>Joggo-mohan Mullick's Lane, Calcutta.</i> |
| 1923 Feb. 7. | N.R. | Jinavijayaji, Muni. Principal, Gujerat Puratattva Mandir. <i>Ellisbridge, Ahmedabad.</i> |
| 1908 June 3. | R. | Jones, Hurbert Cecil, A.R.S.M., A.R.C.S., F.G.S., Asst. Superintendent, Geological Survey of India. <i>Calcutta.</i> |
| 1911 Nov. 1. | N.R. | Kamaluddin Ahmad, Shams-ul-Ulama, M.A. <i>The University, Lucknow.</i> |
| 1891 Feb. 4. | N.R. | Kapur, Ban Behari. Raja Bahadur, C.S.I. <i>Ban Abash, Burdwan.</i> |
| 1920 July 7. | R. | Kar, Sites Chandra. 47, <i>Corporation Street, Calcutta.</i> |
| 1920 Feb. 4. | R. | Keir, W. L., Asst. Architect to the Govt. of Bengal. <i>Writers' Buildings, Calcutta.</i> |
| 1910 May 4. | R. | *Kemp, Stanley W., B.A., D.Sc., F.A.S.B. 27, <i>Chowringhee Road, Calcutta.</i> |
| 1882 Mar. 1. | N.R. | Kennedy, Pringle, M.A., B.L. <i>Mozafferpur.</i> |
| 1920 Mar. 3. | R. | *Khuda Bukhsh, S., F.A.S.B., Bar-at-Law. 5, <i>Elliott Road, Calcutta.</i> |
| 1909 April 7. | R. | Kilner, John Newport, M.B., L.R.C.S., L.R.C.P. 14, <i>Garden Reach, Calcutta.</i> |
| 1910 Mar. 2. | R. | Kirkpatrick, W. <i>Chartered Bank Buildings, Calcutta.</i> |
| 1920 July 7. | R. | Knowles, Robert, Major, I.M.S., M.B.C.S., L.R.C.P., B.A. (Cantab). <i>Calcutta School of Tropical Medicine, Central Avenue, Calcutta.</i> |
| 1921 Dec. 7. | N.R. | Kumar, Anand Kumar. <i>Fairfield, Firozepore Road, Lahore.</i> |
| 1923 Mar. 7. | R. | Labey, George Thomas, Bengal Pilot Service. 5, <i>Loudon Street, Calcutta.</i> |
| 1920 Mar. 3. | R. | Lahiri, Jagadindranath. 91, <i>Upper Circular Road, Calcutta.</i> |
| 1887 May 4. | L.M. | Lanman, Charles Rockwell. 9, <i>Farrar Street, Cambridge, Massachusetts, U.S. America.</i> |
| 1919 Nov. 5. | R. | Larmour, F. A. 60, <i>Bentinck Street, Calcutta.</i> |

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| 1889 Mar. 6. | I..M. | *La Touche, Thomas Henry Digges, M.A., F.G.S., F.A.S.B. 230, <i>Hills Road, Cambridge, England.</i> |
| 1914 Aug. 5. | R. | Law, Bimala Charan, M.A., B.L., F.R.Hist.S., M.R.A.S. 24, <i>Sukea Street, Calcutta.</i> |
| 1911 Feb. 1. | R. | Law, Narendra Nath, M.A., B.L., P.R.S., Ph.D. 96, <i>Amherst Street, Calcutta.</i> |
| 1914 July 1. | R. | Law, Satya Churn, M.A., B.L., F.Z.S., M.B.O.U. 24, <i>Sukea St., Calcutta.</i> |
| 1902 July 2. | N.R. | Leake, Hugh Martin, Sc.D., F.L.S. <i>Nawabgunj, Cawnpore.</i> |
| 1918 June 5. | N.R. | Lees, Donald Hector, I.C.S. <i>Jalpaiguri</i> |
| 1911 May 3. | R. | Lomax, C. E., M.A. <i>La Martinière, Calcutta.</i> |
| 1906 Oct. 31. | N.R. | Luard, Lieut.-Col., Charles Eckford, C.I.E., M.A. (Oxon). <i>C/o Grindlay & Co., London and Bombay.</i> |
| 1870 April 7. | L.M. | Lyman, B. Smith. 708, <i>Locust Street, Philadelphia, U.S. America.</i> |
| 1905 Aug. 2. | R. | *McCay, David. Lieut Col., M.D., B.Ch., B.A.O. (R.U.L.), M.R.C.P. (Lond). F.A.S.B., I.M.S. 24, <i>Park Street, Calcutta.</i> |
| 1893 Jan. 11. | L.M. | MacLagan, The Hon. Sir Edward Douglas, K.C.S.I., K.C.I.E., Governor of the Punjab. <i>Lahore.</i> |
| 1913 Mar. 5. | N.R. | MacMahon, P. S., M.Sc., <i>Canning College, Lucknow.</i> |
| 1893 Jan. 11. | L.M. | Madho Rao Scindia, His Highness Maharajah Colonel Sir, Alijah Bahadur, G.C.S.I., G.C.V.O., A.D.C., LL.D., Maharajah of Gwalior. <i>Jai Bilas, Gwalior.</i> |
| 1916 June 7. | N.R. | Mahajan, Surya Prasad. <i>Murarpur, Gaya.</i> |
| 1920 Mar. 3. | R. | Mahalanobis, Prof. P. C., B.Sc., M.A. 210, <i>Cornwallis Street, Calcutta.</i> |
| 1906 Dec. 5. | R. | Mahalanobis, Subodh Chandra, B.Sc. (Edin.) F.R.S.E., I.E.S., Prof., Presidency College. 210, <i>Cornwallis Street, Calcutta.</i> |
| 1911 Mar. 1. | R. | Mahatap, The Hon. Sir Bijoy Chand, K.C.S.I., Maharajadhiraj of Burdwan, 6, <i>Alipur Lane, Calcutta.</i> |
| 1918 Aug. 7. | R. | Maitra, Jatindra Nath, Physician and Surgeon. 68/A, <i>Beadon St., Calcutta.</i> |
| 1918 Feb. 6. | N.R. | Maitra, Sisir Kumar, Principal, Indian Institute of Philosophy. <i>Amalner, Bombay Presidency.</i> |
| 1920 June 2. | R. | Majumdar, Nani Gopal, M.A., Lecturer, |

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| 1916 Feb. 2. | R. | Calcutta University. 70, <i>Russa Road North, Calcutta.</i> |
| 1913 June 4. | N.R. | Majumdar, Narendra Kumar, M.A., Asst. Prof., Calcutta University. <i>Calcutta.</i> |
| 1913 June 4. | N.R. | Majumdar, Ramesh Chandra, M.A., Ph.D., Prof., Dacca University. <i>Ramna, Dacca.</i> |
| 1918 Feb. 6. | R. | Manen, Johan van, 6, Temple Chambers, <i>Calcutta.</i> |
| 1920 Jan. 5. | N.R. | Mangalik, Murari Sharan, Editor, "The Lalita." <i>Sivasadan, Meerut.</i> |
| 1901 June 5. | N.R. | Mann, Harold Hart, D.Sc., M.Sc., F.I.C., F.L.S., Director of Agriculture, Bombay Presidency. <i>Poona.</i> |
| 1899 Aug. 30. | L.M. | Mannu Lal, Rai Bahadur, Retired Civil Surgeon. <i>Rai Bareli.</i> |
| 1919 Oct. 10. | N.R. | Manry, Rev. J. C. <i>Ewing Christian College, Allahabad.</i> |
| 1905 Dec. 6. | F.M. | Marsden, Edmund, B.A., F.R.G.S., F.R.H.S., F.R.S.L, M.R.A.S. 12, <i>Ellerdale Road, Hampstead, London.</i> |
| 1920 Aug. 4. | A. | Martin, Harold. 6 & 7, <i>Olive Street, Calcutta.</i> |
| 1920 Aug. 4. | A. | Martin, Oswald 6 & 7, <i>Olive Street, Calcutta.</i> |
| 1919 June 4. | N.R. | Matthai George. <i>Govt. College, Lahore.</i> |
| 1920 Dec. 1. | R. | Mazumdar, B. C. 33/1/C, <i>Lansdowne Road, Calcutta.</i> |
| 1922 Feb. 1. | R. | Megaw, Lieut.-Col. J. W. D., I.M.S., Director, Calcutta School of Tropical Medicine. 15, <i>Kyd Street, Calcutta.</i> |
| 1923 Dec. 5. | N.R. | Meggitt, F. J., Professor of Biology, University College. <i>Rangoon.</i> |
| 1886 Mar. 3. | L.M. | Mehta, Roostumjee Dhunjeebhoy, C.I.E., J.P., F.R.S.A. 9, <i>Rainey Park, Ballygunge, Calcutta.</i> |
| 1884 Nov. 5. | N.R. | *Middlemiss, Charles Stewart, C.I.E., F.R.S., B.A., F.G.S., F.A.S.B. <i>Srinagar, Kashmir.</i> |
| 1884 Sep. 3. | R. | Miles, William Henry, F.E.S. 7, <i>King Edward Court, Chowringhee, Calcutta.</i> |
| 1912 June 5. | N.R. | Misra, Champaram. B.A., Dy. Director of Industries. <i>Cawnpore, U.P.</i> |
| 1919 Nov. 5. | N.R. | Misra, Pramatha Nath, M.R.A.S., Pleader. <i>Malda</i> |
| 1911 July 5. | N.R. | Misra, Syama Behari, B.A., P.C.S., Rai Bahadur, Pandit, M.R.S.A., M.R.A.S., F.R.S. Retired Dy. Director, Land Records, U.P. <i>Partabgarh, Gwdh.</i> |

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| 1906 June 6. | R. | Mitra, Kumar Manmatha Nath. 34, <i>Shampukur Street, Calcutta.</i> [Calcutta. |
| 1919 April 2. | R. | Mitra, Panchanan. <i>Bangabasi College,</i> |
| 1916 Feb. 2. | R. | Mohammad Yusuf, Hashimi, Khan Sahib. M.A., M.R.A.S. <i>The Madrasah, 21, Wellesley Square, Calcutta.</i> |
| 1920 Dec. 1. | N.R. | Mohammed Akbar Khan, The Hon'ble, Major, C.I.E., I.A. <i>Chief of Hoti, N.W.F.P.</i> |
| 1923 May 2. | R. | Möller, H. P., Merchant. 18, <i>Ballygunge Circular Road, Calcutta.</i> |
| 1895 July 3. | F.M. | Monahan, Francis John, I.C.S. <i>Harrington Mansions, Calcutta.</i> |
| 1898 May 4. | R. | Mookerjee, Sir R. N., K.C.I.E., K.C.V.O. 7, <i>Harrington Street, Calcutta.</i> |
| 1919 Feb. 5. | R. | Moreno, Henry William Bunn, M.A., Ph.D., M.R.A.S. 13, <i>Wellesley Street, Calcutta.</i> |
| 1912 Jan. 10. | R. | Muhammad Kazim Shirazi, Aga. 23, <i>Lower Chitpur Road, Calcutta.</i> |
| 1909 Mar. 3. | R. | Mukerjee, Brajalal, M.A., Solicitor. 12, <i>Old Post Office Street, Calcutta.</i> |
| 1899 Sept. 29 | R. | Mukerjee, Jateendra Nath, B.A., Solicitor. 4, <i>Hastings Street, Calcutta.</i> |
| 1916 Mar. 1. | R. | Mukerjee Prabhat Kumar, Bar.-at-Law. 14A, <i>Ramtanoo Bose Lane, Calcutta.</i> |
| 1921 Feb. 2. | R. | Mukerjee, Ramaprasad, M.A., B.L. 77, <i>Russa Road, Bhowanipore.</i> |
| 1921 Feb. 2. | R. | Mukerjee, Subodh Chandra, M.A. 97/1, <i>Musjid Bari Street, Calcutta.</i> |
| 1919 Feb. 5 | N.R. | Mukerjee, Taraknath. <i>Falka Colliery, Nirshachate P.O., Manbhum.</i> |
| 1922 July 5. | N.R. | Mukerji, Radhakumud, Prof. of Indian, History, University of Lucknow. <i>Lucknow.</i> |
| 1894 Aug. 30. | R. | Mukharjee, Sivnarayan, Zamindar of Uttarpara. <i>Uttarpara, (near Calcutta).</i> |
| 1886 May 5. | L.M. | *Mukhopadhyaya, The Hon. Justice Sir Asutosh, Kt., C.S.I., M.A., D.L., D.Sc., F.R.S.E., F.R.A.S., F.A.S.R. 77, <i>Russa Road (North), Bhowanipur, Calcutta.</i> |
| 1908 Feb. 5. | R. | *Mukhopadhyaya, Girindra Nath, Bhisagacharya, B.A., M.D. 156, <i>Haris Mukerjee Road (North), Bhowanipur, Calcutta.</i> |
| 1892 Dec. 7. | R. | Mukhopadhyaya, Panchanan, Vidya-bhusana. 46, <i>Bechoo Chatterji Street, Calcutta.</i> |
| 1921 June 1. | N.R. | Muzammil-ullah Khan, Mohammad, Hon. Nawab, Khan Bahadur, O.B.E., |

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| | | Rais, Bhikampur. <i>Bhikampur, Dist. Aligarh, U P.</i> |
| 1906 Mar. 7. | R. | Mahar. Puran Chand, Solicitor. 48, <i>Indian Mirror Street, Calcutta.</i> |
| 1923 Mar. 7. | R. | Nandi P., M.D. (Cal.), Professor of Pharmacology, Carmichael Medical College. 34/1, <i>Beadon Street.</i> |
| 1918 Sept. 25. | N.R. | Narayan, Victor Nityendra, Maharaj Kumar of Cooch Behar. <i>Cooch Behar.</i> |
| 1916 July 5. | R. | Naseer Hosein Khayal, Syed. 78, <i>Prinsep Street, Calcutta.</i> |
| 1914 Feb. 4. | R. | Nawab Ali Chaudhury, The Hon. Nawab Syed. 27, <i>Weston Street, Calcutta.</i> |
| 1901 Mar. 6. | N.R. | Nevill, Lieut.-Col. Henry Rivers, I.C.S. <i>Cranagh, Simla.</i> |
| 1889 Aug. 29. | L.M. | Nimmo, John Duncan. <i>C/o Messrs. Walter Duncan & Co., 137, West George Street, Glasgow.</i> |
| 1913 July 2. | N.R. | Norton, E. L., I.C.S., District Magistrate. <i>Gorakhpur, U.P.</i> |
| 1915 April 7. | A. | Otani, Count Kozui. <i>C/o Consulate-General of Japan, Calcutta.</i> |
| 1923 June 6. | R. | Ottens N., Civil Engineer, 1, <i>Wellesley Place, Calcutta.</i> |
| 1920 Aug. 4. | N.R. | Panikker, Padmanabha, N., B.A., F.I.S., Inspector of Fisheries. <i>Travancore.</i> |
| 1904 Aug. 3. | N.R. | Parasnis, Rao Bahadur Dattatraya Balwant. <i>Satara.</i> |
| 1919 Nov. 5. | R. | *Pascoe, Edwin Hall, M.A., Sc.D. (Cantab.), D.Sc. (Lond.), F.G.S., F.A.S.B., Director, Geological Survey of India. 27, <i>Chowringhee, Calcutta.</i> |
| 1888 June 6. | L.M. | Pennell, Aubray Percival, B.A., Bar-at-Law. <i>Rangoon.</i> |
| 1889 Nov. 6. | L.M. | *Phillott, Lieut.-Col. Douglas Craven, M.A., Ph.D., F.A.S.B., M.R.A.S., Indian Army (Retired). <i>Felsted, Essex, England.</i> |
| 1904 June 1. | R. | Pilgrim, Guy E., D.Sc., F.G.S. <i>Geological Survey of India, Calcutta.</i> |
| 1920 April 7. | N.R. | Pradhan, Hariprasad. <i>Pradhan Cottage, Darjeeling.</i> |
| 1918 April 3. | R. | Prashad, Bains, D.Sc., F.Z.S., Zoological Survey of India. <i>Indian Museum, Calcutta.</i> |

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| 1914 Mar. 4. | A. | Raffin, Alain. <i>Europe.</i> [Nagpur. |
| 1880 April 7. | N.R. | Rai. Bepin Chandra. <i>Giridih, Chota</i> |
| 1895 Aug. 29. | N.R. | Rai-Chaudhuri. Jatindranath, M.A., B.L., Zemindar. <i>Taki, Jessore.</i> |
| 1920 May 7. | N.R. | Ram, Kamakhya Dat, Member, Benares Hindu University Court. <i>Rai Sri</i> <i>Ram's House, Golagunj, Lucknow.</i> |
| 1922 Feb. 1. | R. | Raman. Chandrasekhara Venkata, M.A., D.Sc. (Hon.). 210. <i>Bowbazar Street,</i> <i>Calcutta.</i> |
| 1917 June 6. | N.R. | Rangaswami Aiyangar, K. V., Rao Baha- dur. Prof. of History and Economics, H.H. The Maharaja's College. <i>Trivan-</i> <i>drum.</i> |
| 1905 Jan. 4. | N.R. | Rankin, James Thomas, I.C.S.. Commis- sioner. <i>Dacca.</i> |
| 1921 Dec. 2. | R. | Ranking, Colonel Geo. S.. C.M.G. <i>United</i> <i>Service Club, Calcutta.</i> |
| 1921 Jan. 5. | N.R. | Ray. Maharaja Jagadishnath. Maharaja of Dinajpore. <i>Dinajpore.</i> |
| 1917 May 2. | R. | Ray. Kumud Sankar, M.A., B.Sc., M.B., Ch B. (Edin.). 44, <i>European Asylum</i> <i>Lane, Calcutta.</i> |
| 1890 Mar. 5. | R. | *Ray, Sir Prafulla Chandra, Kt., D.Sc., F.A.S.B. <i>University College of Science,</i> <i>Calcutta.</i> |
| 1919 Feb. 5. | R. | Ray, Sasadhar. 17, <i>Balaram Bose Ghat</i> <i>Road, Bhowanipur, Calcutta.</i> |
| 1920 Mar. 3. | N.R. | Raye, Narendra Nath. <i>Bhagalpur.</i> |
| 1923 July 4. | R. | Rethmeier W. H., Banker. <i>Maundeville</i> <i>Gardens, Calcutta.</i> |
| 1918 April 3. | F.M. | Robinson, Herbert C., Director of Museums and Fisheries, Federated Malay States. <i>Kuala Lumpur.</i> |
| 1900 April 4. | A. | *Rogers, Lieut.-Col. Sir Leonard, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., F.R.S., I.M.S. <i>Europe (c/o Medi-</i> <i>cal College, Calcutta).</i> |
| 1920 Mar. 3. | A. | Ronaldshay, The Right Hon. the Earl of, Governor of Bengal. <i>Calcutta.</i> |
| 1901 Dec. 4. | F.M. | *Ross, Sir Edward Denison, Kt., C.I.E., Ph.D., F.A.S.B., Director, School of Oriental Studies. <i>London.</i> |
| 1918 July 3. | R. | Roy, Dr. Bidhan Chandra, B.A. (Cal.), M.D., F.R.C.S., M.R.C.P. (Lond.). 36, <i>Wellington Street, Calcutta.</i> |
| 1921 Sept. 7. | R. | Roy, Hem Chandra. 76/1A, <i>Upper Circu-</i> <i>lar Road, Calcutta.</i> |

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| 1903 July 1. | L.M. | Roy, Maharaja Jagadindranath, Bahadur. 6, <i>Lansdowne Road, Calcutta.</i> |
| 1915 Oct. 27. | R. | Roy, Kaviraj Jamini Bhusan, Kaviratna, M.A., M.B. 46, <i>Beadon Street, Calcutta.</i> |
| 1920 July 7. | R. | Roy-Chaudhuri, Hem Chandra, M.A., Ph.D 43 2, <i>Amherst Street, Calcutta.</i> |
| 1915 May 5. | N.R. | Rushbrook-Williams, L. F., M.A., B.Litt., O.B.E., M.R.A.S., F.R.Hist.S. <i>Home De- partment, Government of India, India.</i> |
| 1916 April 5. | N.R. | Saha, Radhika Nath, M.R.A.S., Medi- cal Practitioner. 16, <i>Lachmikundu, Benares City, U.P.</i> |
| 1919 Sept. 3. | N.R. | Saksena, Debi Prasad, Sub-Dy. Inspector of Schools. 66, <i>Ganesh Madhia, Jhansi City, U.P.</i> |
| 1922 Nov. 1. | N.R. | Sarkar, Suresh Chandra, Dy. Magistrate and Dy. Collector. B. & O. <i>Barganda, Giridih.</i> |
| 1909 Mar. 3. | R. | Sarvadhikary, Sir Deva Prasad, Kt., C.I.E., M.A., B.L., F.C.U., LL.D. (Aberdeen), LL.D. (St. Andrews). Suriratna, Vidyaratna- ker, Jnanasindhu. 20, <i>Suri Lane, Intally P.O., Calcutta.</i> [Calcutta.] |
| 1919 April 2. | R. | Sen, A. C. 80, <i>Lower Circular Road,</i> |
| 1902 May 7. | R. | Sen, Jogindranath. Vaidyaratna, M.A., Vidyabhusan. 32, <i>Prasanna Kumar Tagore Street, Calcutta.</i> |
| 1914 April 1. | N.R. | Sen-Gupta, Dr. Nares Chandra, M.A., D.L. <i>Ramna P.O., Dacca.</i> |
| 1897 Dec. 1. | R. | Seth, Mesroby Jacob, M.R.A.S., M.S.A., F.R.S.A. 19, <i>Lindsay Street, Calcutta.</i> |
| 1911 July 5. | N.R. | *Sewell, Robert Beresford Seymour, Major, I.M.S., M.A., M.R.C.S., L.R.C.P., F.Z.S., F.L.S. <i>C/o Indian Museum, Calcutta</i> |
| 1923 Feb. 7. | R. | Shanks, Capt. George, B.A., M.D.C.M., I.M.S., Prof. of Pathology, Medical College. <i>Calcutta.</i> |
| 1885 Feb. 4. | L.M. | *Shastri, Haraprasad, Mahamahopadhyaya, C.I.E., M.A., F.A.S.B., Hon. Member, R.A.S. 26, <i>Pataldanga Street, Calcutta.</i> |
| 1923 May 2. | N.R. | Shebbeare, E. O., Deputy Conservator of Forests. <i>C/o Office of Conservator of Forests, Darjeeling.</i> |
| 1923 Dec 5. | N.R. | Sheth, Gunvantray Chunilal N.D. etc., Agricultural and Medical. <i>Shethfalia, Post Bulsar, Dist. Surat, Bombay Presy.</i> |

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| 1909 Jan. 6. | A. | Shirreff, Alexander Grierson, B.A., I.C.S. <i>Europe (c/o India Office).</i> |
| 1913 Dec. 3. | R. | Shorten, Captain James Alfred, B.A., M.B., B.Ch., I.M.S. <i>Medical College, Calcutta.</i> |
| 1908 Mar. 4. | R. | Shujaat Ali, Nasirul Mamalik Mirza, Khan Bahadur, Acting Consul-General for Persia. 10, <i>Hungerford Street, Calcutta.</i> |
| 1916 Aug. 2. | N.R. | Shukla, Ashwani Kumar, B.A., LL.B., Council Member, Mewar State. <i>Udaipur.</i> |
| 1902 Feb. 5. | N.R. | Shyam Lal, Lala. M.A., LL.B., M.R.A.S., M.A.S.B., Dy. Collector and Ilakadar (Retd.). <i>Nawabgunj, Cawnpore, U.P.</i> |
| 1913 Mar. 5. | L.M. | *Simonsen, John Liouse, D.Sc., F.I.C., F.A.S.P. <i>Forest Research Institute and College, Dehra Dun.</i> |
| 1918 Feb. 6 | N.R. | Singh, Badakaji Marichiman. 38, <i>Khichapokhari, Katmandu, Nepal.</i> |
| 1894 July 4. | N.R. | Singh, Raja Kushal Pal, M.A. <i>Narki.</i> |
| 1899 Aug. 29. | N.R. | Singh, H.H. The Maharaja Sir Prabhu Narain, Bahadur, G.C.I.E., G.C.S.I., Maharaja of Benares. <i>Ramnagar Fort, Benares.</i> |
| 1909 April 7. | N.R. | Singh, Prithwipal, Raja, F.R.G.S., F.R.S.A., F.T.S., Talukdar of Surajpur. <i>Chandrahas Palace, Hathnanda P.O., Dist. Barabanki, Oudh</i> |
| 1899 Nov. 6. | L.M. | Singh, H. H. The Hon'ble Maharajadhiraja Sir Rameshwar, G.C.I.E., K.B.E., D.Litt., F.R.A.S., F.P.U. <i>Darbhanga.</i> |
| 1919 Nov. 5. | N.R. | Singh, Shyam Narayan, M.B.E., M.L.A., Rai Bahadur, Bihar and Orissa Civil Service. <i>Patna, E.I.R.</i> |
| 1894 Feb. 7. | N.R. | Singh, H.H. The Maharaja Vishwa Nath, Bahadur. <i>Chhatturpur, Bundelkhund.</i> |
| 1918 Feb. 6 | R. | Singha, Kumar Arun Chandra, M.A. 120/3, <i>Upper Circular Road, Calcutta.</i> |
| 1912 May 1. | N.R. | Singha, Rai Lalit Mohan, Rai Bahadur M.L.C., M.R.A.S. <i>Zemindar of Chakdighi, Dist. Burdwan.</i> |
| 1918 April 3. | N.R. | Sinha, Raja Bahadur Bhupendra Narayan, B.A. <i>Nasipur Rajbati, Nasipur P.O.</i> |
| 1922 Feb. 1. | R. | Sinha, Kumar Gangananda, M.A., Zemindar. 7, <i>Dedarbakhsh Lane, Calcutta.</i> |
| 1921 Feb. 2. | N.R. | Sinha, Gopinath, B.A., M.R.A.S. (Lond.), Zemindar and Rais. <i>Mohalla, Quannungu, Bareilly, U.P.</i> |

| Date of Election. | | |
|-------------------|------|--|
| 1913 July 2. | N.R. | Sinha. Rudra Datta, M.A., LL.B., M.R.A.S. <i>Nazirabad Road, Lucknow.</i> |
| 1912 Sept. 5. | N.R. | Singhi, Bahadur Singh. <i>Azimgunj, Murshidabad.</i> |
| 1916 July 5. | R | Sircar. Ganapati, Vidyaratna. 69, <i>Belia-ghatta Main Road, Calcutta.</i> |
| 1913 July 2. | N.R. | Siva Prasada, B.A., M.R.A.S., U.P.C.S. (Retired). <i>Civil Lines, Fyzabad, Oudh.</i> |
| 1920 June 2. | R. | Skinner, S. A., Engineer and Director, Messrs. Jessop & Co., Ltd. 93, <i>Clive, Street, Calcutta.</i> |
| 1901 Dec. 4. | N.R. | Spooner, David Brainerd, O.B.E., Ph D., F.A.S.B., Dy Director-General, Archaeology. <i>Benmore, Simla E.</i> |
| 1923 Mar 7. | R. | Stamp, L. Dudley, B.A., D.Sc., Geologist. <i>C/o Postmaster, Rangoon (Killiecrankie Sidcup, Kent, England).</i> |
| 1904 Sept. 28. | A. | Stapleton, Henry Ernest, M.A., B.Sc. <i>Ramna, Dacca.</i> |
| 1908 Dec. 2. | R. | Steen, Major Hugh Barkley, M.B., I.M.S. 1, <i>Upper Wood Street, Calcutta.</i> |
| 1922 Feb. 1. | R. | Stewart, Major A. D., I.M.S., Director, Public Health Laboratories, School of Tropical Medicine and Hygiene. <i>Calcutta.</i> |
| 1923 Aug. 1. | N.R. | Stow, Alexander Montagu, M.A. (Cantab.), O.B.E., I.C.S., Punjab Commission, Settlement Commissioner. <i>Kashmir.</i> |
| 1916 July 5. | R. | Street, W. S. <i>C/o Messrs. Shaw Wallace & Co., Calcutta.</i> |
| 1922 Sept. 6. | R. | Strickland, Lieut.-Col. C. A., I.M.S., Prof. of Medical Entomology, School of Tropical Medicine. <i>Calcutta.</i> |
| 1922 Nov. 1. | R. | Strickland-Anderson, Mrs., Composer and Author. <i>Suite 143, The Grand Hotel, Calcutta.</i> |
| 1921 Mar. 2. | R. | Sturrock, Lieut.-Col. G. C., I.M.S. 14, <i>Park Mansions, Calcutta.</i> |
| 1907 June 5. | R. | *Suhrawardy, Abdullah Al-Ma'mun, Iftikharul Millat, M.A., D.Litt, LL.D., F.A.S.B., Barrister-at-Law. 56, <i>Mirzapur Street, Calcutta.</i> |
| 1920 Jan 7. | N.R. | Suhrwardy, Hassan, Major, M.D., F.R.C.S., I.T.F.M.C. <i>Gaya, E.I. Ry.</i> |
| 1920 Mar. 3. | N.R. | Sundara Raj, Bunguru, M.A. (Madras.) <i>C/o Madras Fisheries Bureau, Madras.</i> |
| 1916 Sept. 27. | A. | Sutherland, Rev. W. S., D.D., Scottish |

| Date of Election. | | Universities Mission. <i>Kalimpong, Dist. Darjeeling</i> |
|-------------------|------|---|
| 1919 June 4. | A. | Tacchella, C. F. H. <i>Europe (C/o Indian Institute of Science, Bangalore).</i> |
| 1909 Jan. 6. | R. | Tagore, Kshitindranath, B.A., Tatwanidhi. <i>5/1B, Baranashi Ghose 2nd Lane, Jorasanko, Calcutta.</i> |
| 1898 April 6. | R. | Tagore, The Hon'ble Maharaja Sir Pradyot Coomar, Bahadur, Kt <i>Pathuriaghatta, Calcutta.</i> |
| 1904 July 6. | F.M. | Talbot, Walter Stanley, I.C.S. <i>C/o Messrs. H. S. King & Co., 9, Pall Mall, London, S.W.</i> |
| 1893 Aug. 31. | L.M. | Tate, George Passman. <i>56, Cantonment, Bareilly, U.P.</i> |
| 1906 Dec. 6. | L.M. | Tek Chand, The Hon. Dewan, O.B.E., I.C.S., B.A., M.R.A.S., Barrister-at-Law, Commissioner, Ambala Divn. <i>Ambala Cantt., Punjab.</i> |
| 1878 June 5. | F.M. | Temple, Colonel Sir Richard Carnac, Bart, C.I.E., Indian Army. <i>9, Pall Mall, London.</i> |
| 1909 Aug. 4. | N.R. | Thompson, John Perronet, M.A., I.C.S., Chief Secretary, Govt. of the Punjab. <i>Lahore.</i> |
| 1904 June 1. | R. | *Tipper, George Howlett, M.A., F.G.S., M.I.M.M., F.A.S.B. <i>C/o Geological Survey of India, Calcutta.</i> |
| 1861 June 5. | L.M. | Tremlett, James Dyer, M.A., I.C.S. (Retired). <i>Dedham, Essex, England.</i> |
| 1917 Dec. 5. | N.R. | Tripathi, Ramprasad, Reader in Modern Indian History. <i>The University, Allahabad.</i> |
| 1901 Mar. 6. | F.M. | *Vogel, Jean Philippe, Litt.D., F.A.S.B. <i>The University, Leiden, Holland.</i> |
| 1894 Sept. 27. | L.M. | Vost, Lieut.-Col. William, I.M.S. <i>26, Crystal Palace Park Road, Sydenham, London, S.E. 26.</i> |
| 1918 April 3. | N.R. | *Wall, Frank, Colonel, C.M.G., C.M.Z.S., F.L.S., H.C.Z.S., India. <i>C/o Messrs. H. S. King & Co., 9, Pall Mall, London.</i> |
| 1909 Dec. 1. | N.R. | Webster, J. E., I.C.S. <i>Sylhet, Assam.</i> |
| 1913 April 2. | A. | White, Bernard Alfred. <i>Chartered Bank Buildings, Calcutta.</i> |

| Date of Election. | | |
|-------------------|------|---|
| 1906 Sept. 19. | N.R. | Whitehead, Richard Bertram, I.C.S. <i>Rupar, Umbala, Punjab.</i> |
| 1915 Jan. 6. | N.R. | Whitehouse, Richard H., D.Sc., I.E.S. <i>Central Training College, Lahore.</i> |
| 1919 May 7. | N.R. | Wills, Cecil Upton, B.A., I.C.S. <i>Nagpur.</i> |
| 1906 Mar. 7. | N.R. | Woolner, Alfred Cooper, M.A. <i>Panjab University, Lahore.</i> |
| 1908 April 1. | R. | Wordsworth, William Christopher. <i>Presidency College, Calcutta.</i> |
| 1894 Aug. 30. | N.R. | Wright, Henry Nelson, I.C.S., District Judge, <i>Bareilly.</i> |
| 1919 Feb. 5. | N.R. | Yazdani, Ghulam, M.A. <i>Hyderabad, Deccan.</i> |
| 1906 June 6. | F.M. | Young, Mansel Charles Gambier. <i>Khagaul P.O., Dinapore, E.I.R.</i> |
| 1919 July 2. | N.R. | Zafar Hasan. <i>Archæological Survey of India, Delhi.</i> |

SPECIAL HONORARY CENTENARY MEMBERS.

| Date of Election. | | |
|-------------------|--|---|
| 1884 Jan. 15. | | Revd. Professor A. H. Sayce, Professor of Assyriology, Queen's College. <i>Oxford, England.</i> |
| 1884 Jan. 15. | | Monsieur Émile Senart. 18, <i>Rue François Ier, Paris, France.</i> |

HONORARY FELLOWS.

| Date of Election. | | |
|-------------------|--|--|
| 1879 June 4. | | Dr. Jules Janssen. <i>Observatoire d'Astronomie Physique de Paris, France.</i> |
| 1896 Feb. 5. | | Professor Charles Rockwell Lanman. 9, <i>Farrar Street, Cambridge, Massachusetts, U.S. America.</i> |
| 1899 Dec. 6. | | Professor Edwin Ray Lankester, M.A., LL.D., F.R.S. <i>British Museum (Nat. Hist.), Cromwell Road, London, S.W.</i> |
| 1904 Mar. 2. | | Sir Ramkrishna Gopal Bhandarkar, M.A., Ph.D., LL.D., K.C.I.E. <i>Sangamashrama, Poona.</i> |
| 1904 Mar. 2. | | Sir George Abraham Grierson, K.C.I.E., Ph.D., |

Date of Election.

- D.Litt., LL.D., F.B.A., I.C.S. (Retired.) *Rathfarnham, Camberley, Surrey, England.*
- 1906 Mar. 7. The Most Hon'ble Marquess Curzon of Kedleston, K.G., M.A., D.C.L., F.R.S. 1, *Carlton House Terrace, London, S.W.*
- 1911 Sept. 6. Alfred William Alcock, C.I.E., M.B., LL.D., F.R.S. *Heathlands, Belvedere, Kent.*
- 1911 Sept. 6. Edward Granville Browne, M.A., M.B. (Cambridge), F.R.C.P., M.R.C.S. (London), F.B.A. *Pembroke College, Cambridge.*
- 1911 Sept. 6. Mahamahopadhyaya Kamakhyanath Tarkavagisa. 111 4, *Shambazar Street, Calcutta.*
- 1915 Aug. 4. Prof. Sir Paul Vinogradoff, F.B.A., D.C.L. 19, *Linton Road, Oxford, England.*
- 1915 Aug. 4. Sir Joseph John Thomson, Kt., O.M., M.A., Sc.D., D.Sc., LL.D., Ph.D. *Trinity College, Cambridge, England.*
- 1916 Dec. 6. Dr. G. A. Boulenger, F.R.S., LL.D., British Museum (Nat. Hist.). *Cromwell Road, London, S.W.*
- 1917 May 2. Herbert Allen Giles, Professor. 10, *Selwyn Gardens, Cambridge, England.*
- 1920 Feb. 4. Sir Charles Eliot, K.C.M.G., C.B., M.A., LL.D., D.C.L. *H.M. Ambassador at Tokyo.*
- 1920 Feb. 4. Prof. Sylvain Lévi *Collège de France, Paris.*
- 1920 Feb. 4. Sir Aurel Stein, K.C.I.E., Ph.D., D.Litt., D.Sc., D.O.L., F.B.A. *Srinagar, Kashmir.*
- 1920 Feb. 4. Prof. A. Foucher, D.Litt. *University of Paris*
- 1920 Feb. 4. Arthur Keith, Esq., M.D., F.R.C.S., LL.D., F.R.S., Royal College of Surgeons of England. *Lincoln's Inn Fields, London, W.C. 2.*
- 1920 Feb. 4. R. D. Oldham, Esq., F.R.S., F.G.S., F.R.G.S. 1, *Broomfield Road, Kew, Surrey, England.*
- 1920 Feb. 4. Sir David Prain, Kt., C.M.G., C.I.E., M.A., M.B., LL.D., F.R.S.E., F.L.S., F.R.S., F.Z.S., M.B.I.A. *Royal Botanic Gardens, Kew, Surrey, England.*
- 1920 Feb. 4. Sir Joseph Larmor, Kt., M.P., M.A., D.Sc., LL.D., D.C.L., F.R.S., F.R.A.S. *Cambridge.*
- 1920 Feb. 4. Sir James Frazer, Kt., D.C.L., LL.D., Litt.D. 1, *Brick Court, Temple, London, E.C. 4.*
- 1920 Feb. 4. Prof. J. Takakusu. *Imperial University of Tokyo, Japan.*
- 1921 Mar. 2. F. W. Thomas, M.A., Hon. Ph.D., Librarian, Indian Office, Whitehall, London, S.W.1.
- 1922 June 7. Prof. W. H. Perkin, Ph.D., Sc.D., LL.D., F.R.S.
- 1922 June 7. Sir Thomas Holland, K.C.S.I., K.C.I.E., D.Sc., F.R.S.

| Date of Election. | |
|-------------------|--|
| 1922 June 7. | Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.S., I.M.S. |
| 1922 Nov. 1. | Prof. A. C. Macdonell, M.A., Ph.D. |

FELLOWS.

| Date of Election. | |
|-------------------|---|
| 1910 Feb. 2. | N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S. |
| 1910 Feb. 2. | The Hon'ble Justice Sir Asutosh Mukhopadhyaya, Kt., C.S.I., M.A., D.L., D.Sc., F.R.A.S., F.R.S.E. |
| 1910 Feb. 2. | I. H. Burkill, Esq., M.A., F.L.S. |
| 1910 Feb. 2. | Mahamahopadhyaya Haraprasad Shastri, C.I.E., M.A. |
| 1910 Feb. 2. | Sir Thomas H. Holland, K.C.S.I., K.C.I.E., D.Sc., LL.D., F.R.S. |
| 1910 Feb. 2. | T. H. D. La Touche, Esq., B.A., F.G.S. |
| 1910 Feb. 2. | Lieut.-Col. D. C. Phillott, Ph.D., Indian Army (Retired). |
| 1910 Feb. 2. | Sir Prafulla Chandra Ray, Kt., D.Sc. |
| 1910 Feb. 2. | Lieut.-Col. Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.R.S., I.M.S. |
| 1910 Feb. 2. | Sir E. D. Ross, Kt., C.I.E., Ph.D. |
| 1910 Feb. 2. | M. W. Travers, Esq., D.Sc., F.R.S. |
| 1912 Feb. 7. | H. Beveridge, Esq., I.C.S. (Retired). |
| 1912 Feb. 7. | Sir J. C. Bose, Kt., C.S.I., C.I.E., M.A., D.Sc. |
| 1912 Feb. 7. | P. J. Brühl, Esq., Ph.D., F.C.S. |
| 1912 Feb. 7. | Capt. S. R. Christophers, I.M.S. |
| 1912 Feb. 7. | Charles Stewart Middlemiss, Esq., B.A., F.G.S. |
| 1913 Feb. 5. | J. Ph. Vogel, Esq., Ph.D., Litt.D. |
| 1913 Feb. 5. | Dr. S. W. Kemp, B.A. |
| 1915 Feb. 3. | Major E. D. W. Greig, C.I.E., M.B., I.M.S. |
| 1915 Feb. 3. | G. H. Tipper, Esq., M.A., F.G.S. |
| 1915 Feb. 3. | D. B. Spooner, Esq., Ph.D. |
| 1915 Feb. 3. | F. H. Haines, Esq., F.C.H., F.L.S. |
| 1916 Feb. 2. | R. Burn, Esq., C.I.E., I.C.S. |
| 1916 Feb. 2. | L. L. Fermor, Esq., A.R.S.M., D.Sc., F.G.S. |
| 1917 Feb. 7. | F. H. Gravely, Esq., D.Sc. |
| 1918 Feb. 6. | J. L. Simonsen, Esq., Ph.D. |
| 1918 Feb. 6. | Lieut.-Col. D. McCay, M.D., I.M.S. |
| 1918 Feb. 6. | Abdullah Al-Mámun Suhrawardy, Esq., M.A., Ph.D. |
| 1919 Feb. 5. | J. Coggin Brown, Esq., O.B.E., M.I.M.E., F.G.S. |
| 1919 Feb. 5. | W. A. K. Christie, Esq., B.Sc., Ph.D. |
| 1919 Feb. 5. | D. R. Bhandarkar, Esq., M.A. |

| Date of Election. | |
|-------------------|--|
| 1919 Feb. 5. | Major R. B. Seymour Sewell, I.M.S. |
| 1921 Feb. 2. | Lieut.-Col. F. Wall, C.M.G., I.M.S. |
| 1921 Feb. 2. | U. N. Brahmachari, Esq., M.A., Ph.D., M.D. |
| 1921 Feb. 2. | B. L. Chaudhuri, Esq., B.A., D.Sc., F.L.S., F.R.S.E. |
| 1922 Feb. 1. | E. H. Pascoe, Esq., M.A., D.Sc., F.G.S. |
| 1922 Feb. 1. | Ramaprasad Chanda, Esq., B.A. |
| 1923 Feb. 7. | S. Khuda Baksh Esq, M.A., B.O.L. |
| 1923 Feb. 7. | Dr. G. N. Mukherjee, B.A., M.D. |

ASSOCIATE MEMBERS.

| Date of Election. | |
|-------------------|--|
| 1885 Dec. 2. | Dr. A. Führer, Prof. of Sanskrit. 5, Dorenbachstrasse, Binningen, Basel, Switzerland. |
| 1902 June 4. | Revd. A. H. Francke. Europe. |
| 1908 July 1. | Rai Sahib Dinesh Chandra Sen, B.A. 19, Visvakos Lane, Calcutta. |
| 1910 Sept. 7. | Shams-ul-Ulama Ahmad Abdul Aziz (Nayati), Khan Bahadur, Nawab Aziz Jung Bahadur. Aziz Villa, Aziz Bagh, Sultan Poora, Hyderabad, Deccan. |
| 1910 Sept. 7. | L. K. Anantha Krishna Iyer, Rao Bahadur, B.A., L.T., F.R.A.I., University Lecturer in Anthropology, Calcutta University. Calcutta. |
| 1910 Dec. 7. | Revd. Fr. H. Hosten, S.J. St. Joseph's College, Darjeeling. |
| 1915 Mar. 3. | E. Brunetti, Esq. 27, Chowringhee Road, Calcutta. |
| 1919 Sept. 3. | H. Bruce Hannah, Esq. Bengal Club, Calcutta. |
| 1921 Jan. 5. | Professor Shahay Ram Bose, M.D., Ph.D., F.L.S., Prof. of Botany, Carmichael Medical College. Belgachia, Calcutta. |
| 1922 Feb. 1. | Pierre Johanns, B.Litt. (Oxon), Prof. of Philosophy, St. Xavier's College. Calcutta. |
| 1922 Feb. 1. | Vedantabisharad Anantakrishna Sastri. 57/1, Sreegopal Mallick Lane, Calcutta. |

LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM INDIA THREE YEARS AND UPWARDS.*

* Rule 40.—After the lapse of three years from the date of a member leaving India, if no intimation of his wishes shall, in

the interval, have been received by the Society, his name shall be removed from the List of Members.

The following members will be removed from the next Member List of the Society under the operation of the above rule :—

H. G. Carter, M.B., Ch.B.
H. P. Martin.
C. F. H. Tacchella.
B. A. White.

LOSS OF MEMBERS DURING 1923.

BY RETIREMENT.

Ordinary Members.

A. S. Allan.
Dewan Bahadur Seth Ballabhdas.
Dr. S. K. Banerjee.
Sir C. A. Bell.
Captain Ali Reza Brandon.
W. R. C. Brierly.
Vanamali Chakravarti.
Promode Prakas Chatterjee.
G. R. Clarke.
D. A. David.
Prof. B. C. Dutt.
C. H. Elmes.
Atal Behari Ghosh.
Prafulla Chundra Ghosh.
Sir W. R. Gourlay.
K. A. K. Hallowes.
Dr. E. H. Hankin.
A. M. Heron.
O. F. Jenkins.
F. S. Kerr.
Netai Churan Law.
J. T. Marten.
Adar Chandra Mitra.
Major J. C. More.
Dr. E. Muir.
W. W. K. Page.
Lt.-Col. C. L. Peart.
Sir A. D. Pickford.
Dr. Kumad Sankar Ray.
Meghnand Saha.
Rai Sahib Bhagvati Sahay.
Lt.-Col. R. C. F. Schomberg.
P. N. Tagore.
Capt. T. C. McCombie Young.

Ordinary Fellow.

Lt.-Col. A. T. Gage.

BY DEATH.

Ordinary Members.

W. E. M. Campbell.
 Kumar Devendra Prosad Jain.
 Sir C. S. Kesteven.
 Siva Narain Mukherjee.
 Raja A. V. Jugga Rao.
 Khagendra Bhusan Roy.

Honorary Fellows.

Lt.-Col. H. H. Godwin-Austen.
 Prof. T. W. Rhys Davids.

Ordinary Fellows.

Sir H. H. Hayden.
 E. Vredenburg.

Associate Members.

Rev. J. D. Bate.
 Rev. E. Francotte.
 Pandit Jaināchārya Vijayadharma Śūri Svaraṇi (Çr
 Vijaya Dharma Śūri).

ELLIOTT GOLD MEDAL AND CASH.

RECIPIENTS.

1893 Chandra Kanta Basu.
 1895 Yati Bhusana Bhaduri, M.A.
 1896 Jnan Saran Chakravarti, M.A.
 1897 Sarasi Lal Sarkar, M.A.
 1901 Sarasi Lal Sarkar, M.A.
 1904 { Sarasi Lal Sarkar, M.A.
 Surenbra Nath Maitra, M.A.
 1907 Akshoyakumar Mazumdar.
 1911 { Jitendra Nath Rakshit.
 Jatindra Mohan Datta.
 Rasik Lal Datta.
 1913 { Saradakanta Ganguly.
 Nagendra Chandra Nag
 Nilratan Dhar.

- 1918 Bibhutibhushan Dutta, M.Sc.
1919 Dr. Jnanendra Chandra Ghosh.
1922 Abani Bhusan Datta, M.A., Ph.D.
1923 Bhailal M. Amin, B.A.
-

BARCLAY MEMORIAL MEDAL.

RECIPIENTS.

- 1901 E. Ernest Green, Esq.
1903 Major Ronald Ross, F.R.C.S., C.B., C.I.E., F.R.S.,
I.M.S. (Retired).
1905 Lieut.-Col. D. D. Cunningham, F.R.S., C.I.E.,
I.M.S. (Retired).
1907 Lieut.-Col. Alfred William Alcock, M.B., LL.D.,
C.I.E., F.R.S.
1909 Lieut.-Col. David Prain, M.A., M.B., LL.D., F.R.S.,
I.M.S. (Retired).
1911 Dr. Karl Diener.
1913 Major William Glen Liston, M.D., C.I.E., I.M.S.
1915 J. S. Gamble, Esq., C.I.E., M.A., F.R.S.
1917 Lieut.-Col. Henry Haversham Godwin-Austen,
F.R.S., F.Z.S., F.R.G.S.
1919 N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S.,
F.A.S.B.
1921 Lieut.-Col. Sir Leonard Rogers, F.R.S., C.I.E.,
F.R.C.S., M.D., B.Sc., F.R.C.P., I.M.S. (Retired).

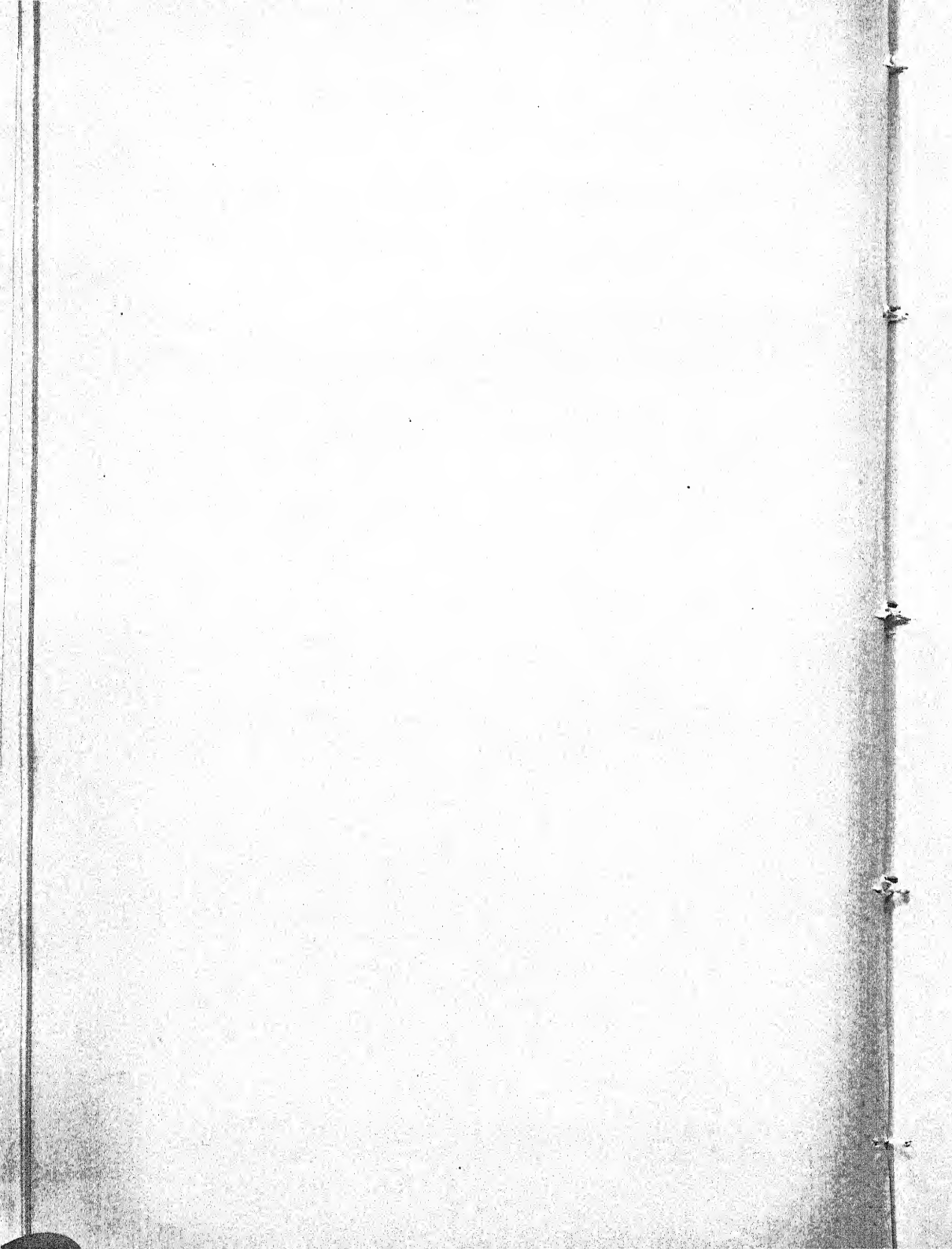
(Chronological.)

| | | | | |
|-------|-----|-------------------------------------|--|-----|
| 1861. | | | Maharaja Vishwa Nath, Bahadur. | |
| June | 5. | Tremlett, J. Dyer. | | |
| 1870. | | | July | 4. |
| Feb. | 2. | Baden-Powell, Baden H. | Singh, Raja Kushal Pal. | |
| April | 7. | Lyman, B. Smith. | Aug. | 30. |
| 1873. | | | Sept. | 27. |
| Jan. | 2. | Houstoun, G. L. | " | " |
| 1876. | | | " | " |
| Nov | 15. | Beveridge, H. | Vost, W. | 35 |
| 1878. | | | 1895. | |
| June | 5. | Temple, Sir Carnac. | Mar. | 6. |
| 1880. | | | July | 3. |
| April | 7. | Rai, B. C. | Beatson-Bell, Nicholas D. | Sir |
| 1882. | | | " | " |
| Mar. | 1. | Kennedy, P. | Monahan, F. J. | |
| 1884. | | | Aug. | 29. |
| Sept. | 3. | Miles, W. H. | Rai Chaudhuri, J. | |
| Nov. | 5. | Middlemiss, C. S. | Sept. | 19. |
| 1885. | | | De, K. C. | 40 |
| Feb. | 4. | Shastri, Haraprasad. | 1896. | |
| 1886. | | | Jan. | 8. |
| Mar. | 3. | Mehta, R. D. | Burn, R. | |
| May | 5. | Mukhopadhyaya, Sir Asutosh. | 1897. | |
| 1887. | | | Dec. | 1. |
| May | 4. | Lanman, C. R. | Seth, M. J. | |
| Aug. | 25. | Criper, W. R. | 1898. | |
| 1888. | | | Jan. | 5. |
| June | 6. | Pennell, A. P. | Dods, W. K. | |
| 1889. | | | Feb. | 2. |
| Mar. | 6. | La Touche, T. H. D. | Bose, A. L. | |
| Aug. | 29. | Nimmo, J. D. | Mar. | 2. |
| Nov. | 6. | Phillott, D. C. | Barnes, H. C. | 45 |
| 1890. | | | April | 6. |
| Mar. | 5. | Ray, Sir Prafulla C. | Tagore, Maharaja Sir Prodyat C. | |
| 1891. | | | May | 4. |
| Feb. | 4. | Kapur, Raja B. B. | Mukherjee, Sir R. N. | |
| July | 1. | Holland, Sir Thomas H. | 1899. | |
| 1892. | | | Aug. | 29. |
| Jan. | 6. | Haig, T. Wolseley. | Singh, H. H. the Maharaja Sir Prabhu Narain. | |
| Dec. | 7. | Mukhopadhyaya, P. | " | 30. |
| 1893. | | | Manau Lal. | 50 |
| Jan. | 11. | MacLagan, Sir Edward D. | Sept. | 29. |
| " | " | Madho Rao Scindia, H. H. Maharajah. | Mukerjee, J. N. | |
| Feb. | 1. | Bodding, P. O. | Nov. | 6. |
| Aug. | 31. | Tate, G. Passman. | Singh, H. H. The Hon. Maharaja Sir Rameshwara. | |
| Sept. | 28. | Chaudhuri, B. L. | 1900. | |
| 1894. | | | April | 4. |
| Feb. | 7. | Singh, H. H. The | Rogers, Sir Leonard. | |
| | | | May | 2. |
| | | | Butcher, F. | |
| | | | Dec. | 5. |
| | | | Grieve, J. W. A. | |
| | | | 1901. | |
| | | | Mar. | 6. |
| | | | Habibur, R. K. | 55 |
| | | | " | " |
| | | | Nevill, H. R. | |
| | | | " | " |
| | | | Vogel, J. P. | |
| | | | June | 5. |
| | | | Burkill, I. H. | |
| | | | " | " |
| | | | Mann, H. H. | |
| | | | Dec. | 4. |
| | | | Ross, Sir Edward D. | 60 |
| | | | " | " |
| | | | Spooner, D. B. | |
| | | | 1902. | |
| | | | Feb. | 5. |
| | | | Shyam Lal. | |
| | | | May | 7. |
| | | | Sen, J. N. | |
| | | | July | 2. |
| | | | Doxey, F. | |
| | | | " | " |
| | | | Leake, H. M. | 65 |

| | | | | | | | |
|-------|-------|-----|--------------------------------|-------|-----|-------------------------------|-----|
| 1903. | July | 1. | Roy, Maharaja J. | Aug. | 4. | Drake-Brockman, D. L. | |
| 1904. | June | 1. | Pilgrim, G. E. | Oct. | 6. | Brown, P. | |
| | " | " | Tipper, G. H. | " | " | Brühl, P. | 120 |
| | July | 6. | Aulad Hasan. | " | 7. | Ganguli, O. K. | |
| 70 | " | " | Talbot, W. S. | Nov. | 3. | Christophers, S. R. | |
| | Aug. | 3. | Fermor, L. L. | " | " | Donovan, C. | |
| | " | " | Parasnis, D. B. | Dec. | 1. | Webster, J. E. | |
| | Sept. | 28. | Annandale, N. | 1910. | | | |
| | " | " | Stapleton, H. E. | Mar. | 2. | Greig, E. D. W. | 125 |
| 1905. | | | | " | " | Kirkpatrick, W. | |
| 75 | Jan. | 4. | Rankin, J. T. | May | 4. | Dhavlé, S. B. | |
| | Mar. | 1. | Banerji, M. | " | " | Kemp, S. W. | |
| | May | 3. | Graves, H. G. | July | 6. | Botham, A. W. | |
| | July | 5. | Ghosh, A. C. | Aug. | 3. | Jain, Podamraj. | 130 |
| | Aug. | 2. | McCay, D. | Sept. | 7. | Gravelly, F. H. | |
| 80 | Dec. | 6. | Marsden, E. | 1911. | | | |
| 1906. | | | | Feb. | 1. | Insch, J. | |
| | Jan. | 3. | Chapman, J. A. | " | " | Law, N. N. | |
| | Mar. | 7. | Nahar, P. C. | Mar. | 1. | Mahatap, Sir Bijoy Chand. | |
| | " | " | Woolner, A. C. | April | 5. | Hiralal. | 135 |
| | June | 6. | Mitra, K. M. N. | May | 3. | Atkinson, A. C. | |
| 85 | " | " | Young, M. C. G. | " | " | Lomax, C. E. | |
| | Sept. | 19. | Whitehead, R. B. | June | 7. | Chatterjee K. K. | |
| | Oct. | 31. | Finlow, R. S. | " | " | Hidayat Hussain, Muhammad. | |
| | " | " | Luard, C. E. | July | 5. | Misra, S. B. | 140 |
| | Dec. | 5. | Dentith, A. W. | " | " | Sewell R. B. S. | |
| 90 | " | " | Mahalanobis, S. C. | Nov. | 1. | Esch, V. J. | |
| | " | " | Tek Chand. | " | " | Kamaluddin A. | |
| 1907. | | | | 1912. | | | |
| | Jan. | 2. | Banerji, R. D. | Jan. | 10. | Kazim Shirazi, A. M. | |
| | June | 5. | Suhrawardy, A. | Mar. | 6. | Ganguli, M. | 145 |
| | July | 3. | Brown, J. C. | May | 1. | Harley, A. H. | |
| 95 | " | " | Christie, W. A. K. | " | " | Singh Roy, L. M. | |
| | " | " | Cotter, G. de Purcell. | June | 5. | Misra, C. | |
| | Aug. | 7. | Haines, H. H. | July | 3. | Andrews, E. A. | |
| 1908. | | | | " | " | Bomford, T. L. | 150 |
| | Jan. | 1. | Brahmachari, U. N. | Sept. | 4. | Ghosh, T. | |
| | Feb. | 5. | Mukhopadhyaya, G. N. | " | 5. | Singhi, B. S. | |
| 100 | Mar. | 4. | Shujaat Ali, N. M. M. | 1913. | | | |
| | April | 1. | Harrison, E. P. | Mar. | 5. | MacMahon, P. S. | |
| | " | " | Wordsworth, W. C. | " | " | Simonsen, J. L. | |
| | June | 3. | Jones, H. C. | April | 2. | Calder, C. C. | 155 |
| | Nov. | 4. | Bhattacharji, B. | " | " | White, B. A. | |
| 105 | Dec. | 2. | Steen, H. B. | June | 4. | Majumdar, R. C. | |
| 1909. | | | | July | 2. | Norton, E. L. | |
| | Jan. | 6. | Shirreff, A. G. | 1913. | | | |
| | " | " | Tagore, K. | July | 2. | Sinha, R. | |
| | Mar. | 3. | Abdul Latif. | " | " | Sivaprasad. | 160 |
| | " | " | Chakravarti, N. | Nov. | 5. | Fox, C. S. | |
| 110 | " | " | Mukerjee, B. | Dec. | 3. | Shorten, J. A. | |
| | " | " | Sarvadhikari, Sir Deva Prasad. | 1914. | | | |
| | April | 7. | Bentley, C. A. | Feb. | 4. | Nawab Ali Chaudhury, Nawab S. | |
| | " | " | Kilner, J. N. | Mar. | 4. | Bacot, J. | |
| | " | " | Singh, Raja P. | " | " | Raffin, A. | 165 |
| 115 | July | 7. | Bazuz, R. K. | April | 1. | Chaudhuri, G. D. | |
| | " | " | Bhattacharji, S. N. | " | " | Sen-Gupta, N. C. | |

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|-------|-------|-----|-----------------------|--|-------|-----|------------------------|-----|
| 914. | July | 1. | Law, S. C. | | Feb. | 5 | Moreno, H. W. B. | |
| | Aug. | 5. | Law, B. C. | | " | " | Mukerjee, T. | |
| 1915. | Jan. | 6. | Carter, H. G. | | " | " | Ray, S. S. | |
| 170 | " | " | Whitehouse, R. H. | | " | " | Yazdani, G. | 225 |
| | Feb. | 3. | Ahmad Ali Khan, H. | | Mar. | 5. | Gupta, S. P. | |
| | April | 7. | Belvalkar, S. K. | | April | 2. | Bal, S. N. | |
| | " | " | Otani, Count K. | | " | " | Friel, R. | |
| 175 | Aug. | 4. | Gurner, C. W. | | " | " | Mitra, P. | |
| | Sept. | 1. | Cleghorn, M. L. W. | | " | " | Sen. A. C. | 230 |
| | " | " | Das Gupta, H. C. | | May | 7. | Wills, C. U. | |
| | Oct. | 27. | Chatterjee, A. C. | | June | 4. | Matthai, G. | |
| | " | " | Roy, K. J. B. | | " | " | Tacchella, C. F. H. | |
| 1916. | Jan. | 5. | Chatterjee, K. N. | | " | 6. | Boso, A. M. | |
| 180 | " | " | Hamilton, C. J. | | July | 2. | Amin-ul-Islam. | 235 |
| | Feb. | 2. | Majumdar, N. K. | | " | " | Banerji, P. | |
| | " | " | Mohammad Ysuf, H. | | " | " | Banerji, P. | |
| | Mar. | 1. | Mukerjee P. K. | | " | " | Zafar Hasan. | |
| 185 | April | 5. | Saha, R. N. | | Sept. | 3. | Saksena, D. P. | |
| | June | 7. | Mahajan, S. P. | | Oct. | 10. | Manry, J. C. | 240 |
| | July | 5. | Naseer Hosein. K. | | Nov. | 5. | Dube, B. M. | |
| | " | " | Sarkar, G. | | " | " | Gambhir, J. S. | |
| | " | " | Street, W. S. | | " | " | Hemraj, R. | |
| 190 | Aug. | 2. | Shukla, A. K. | | " | " | Larmour, F. A. | |
| | Sept. | 27. | Sutherland, W. S. | | " | " | Misra, P. N. | 245 |
| 1917. | April | 4. | Awati, P. R. | | " | " | Pascoe, E. H. | |
| | " | " | Datta, R. L. | | " | " | Singh, S. N. | |
| | June | 6. | Deb, K. H. K. | | 1920. | | | |
| 195 | " | " | Dunn, T. O. D. | | Jan. | 5. | Mangalik, M. S. | |
| | " | " | Gupta, K. [gar, K. V. | | " | 7. | Aiyar S., Parameshara, | |
| | " | " | Rangaswami Aiyar- | | " | " | Suhrawardy, H. | 250 |
| | Aug. | 1. | Bhandarkar, D. R. | | Feb. | 4. | Hill, H. B. C. | |
| | Oct. | 3. | Bose, S. N. | | " | " | Keir, W. I. | |
| 200 | Dec. | 5. | Sastri, A. K. | | " | " | Brij Narayan. | |
| | " | " | Tripathi, R. | | Mar. | 3. | Ballardie, J. H. de | |
| 1918. | | | | | " | " | Caynoth. | |
| | Feb. | 6. | Banerji, N. N. | | " | " | Ganguli, P. | 255 |
| | " | " | Ghosh, E. N. | | " | " | Khuda Bakhsh, S. | |
| | " | " | Hui, W. | | " | " | Lahiri, J. | |
| 205 | " | " | Maitra, S. K. | | " | " | Mahalanobis, P. C. | |
| | " | " | Manen, Johan van. | | " | " | Sundara, Raj, B. | |
| | " | " | Singh, B. M. | | " | " | Raye, N. N. | 260 |
| | " | " | Singha, A. C. | | " | " | Ronaldshay, the Earl | |
| | April | 3. | Das, J. R. | | " | " | of. | |
| 210 | " | " | Prashad, B. | | April | 7. | Bosworth-Smith, P. | |
| | " | " | Robinson, H. C. | | " | " | Dutt, K. K. | |
| | " | " | Sinha, Raja B. N. | | " | " | Pradhan, H. | |
| | " | " | Wall, F. | | May | 5. | Ghosh, S. N. | 265 |
| | June | 5. | Lees, D. H. | | " | " | Harcourt, E. S. | |
| 215 | July | 3. | Campos, J. J. | | " | 7. | Ram, K. D. | |
| | " | " | Roy, B. C. | | June | 2. | Majumdar, N. G. | |
| | Aug. | 7. | Maitra, J. N. | | " | " | Skinner, S. A. | |
| | Sept. | 25. | Narayan, Prince V. N. | | July | 7. | Gourlay, C. A. | 270 |
| 1919. | Feb. | 5. | Abdul Kader Surfraz. | | " | " | Kar, S. C. | |
| 220 | " | " | Galooostian, V. M. | | " | " | Knowles, R. | |
| | " | " | Ghulam Mohiud-din | | " | " | Roy-Chaudhuri, H. C. | |
| | | | Sufi. | | Aug. | 4. | Dikshit, K. N. | |
| | | | | | " | " | Martin, H. | 275 |
| | | | | | " | " | Martin, O. | |
| | | | | | " | " | Panikker, N. P. | |
| | | | | | Sept. | 1. | Chakladar, H. C. | |
| | | | | | " | " | Chanda, R. | |

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|-------|-------|----------------------------------|-------|----|------------------------------|-----|
| 1920. | | | April | 5 | Dutta, B. | |
| 280 | Sept. | 1. Chatterjee, N. C. | " | " | Fülep, E. G. | |
| | Dec. | 1. Connor, F. P. | " | " | Goswami, S. C. | |
| | " | " Ivanow, W. | May | 3. | Schomberg, R. C. F. | 315 |
| | " | " Mazumdar, B. C. | June | 7. | Bhattacharya, S. P. | |
| | " | " Mohammed Akbar Khan. | July | 5. | Mookerjee, R. K. | |
| | | | Sept. | 6. | Das-Gupta, S. N. | |
| 1921. | | | Nov. | 1. | Anderson, L. Strickland. | |
| 285 | Jan. | 5. Ray, Maharaja J. | " | " | Sarkar, S. C. | 320 |
| | Feb. | 2. Jain, Chhote Lall. | Dec. | 6. | Blackett, Sir Basil P. | |
| | " | " Mukerjee, R. | 1923. | | | |
| | " | " Mukerjee, S. C. | Feb. | 7. | Barber, C. T. | |
| | " | " Sinha, G. | " | " | Jinavijayaji, Muni. | |
| 290 | Mar. | 2. Sturrock, G. C. | " | " | Shanks, Capt. G. | |
| | May | 4. Hartog, P. J. | Mar. | 7. | Fry, A. B. | 325 |
| | June | 1. Ghatak, Prof. Joyotischandra. | " | " | Gupta, N. | |
| | " | " Muzamilullah Khan, Mohammad. | " | " | Labey, G. T. | |
| | Sept. | 7. Deb, P. K. | " | " | Nandy, P. | |
| 295 | " | " Roy, H. C. | " | " | Stamp, L. D. | |
| | Nov. | 2. Hora, S. L. | April | 4. | Alker, A. | 330 |
| | " | " Shah, E. H. | May | 2. | Bhukhanwalla, R. M. A. | |
| | Dec. | 7. Kumar, A. K. | " | " | Collenberg, Baron H. R. von. | |
| | " | " Ranking, G. S. | " | " | Harnett, W. L. | |
| 300 | " | " Barua, B. M. | " | " | Moller, H. P. | |
| | " | " Kumar, A. | " | " | Shebbeare, E. O. | 335 |
| | " | " Telang, P. A. | June | 6. | Das, K. | |
| 1922. | | | " | " | Howard, A. | |
| | Feb. | 1. Bhattacharya, V. S. | " | " | Hutton, J. H. | |
| | " | " Chopra, R. N. | " | " | Ottens, N. | |
| 305 | " | " Megaw, J. W. D. | July | 4. | Rethmeier, W. H. | 340 |
| | " | " Raman, C. V. | Aug. | 1. | Biswas, K. | |
| | " | " Sinha, Kumar G. | " | " | Stow, A. M. | |
| | " | " Stewart, A. D. | Dec. | 5 | Meggitt, F. J. | |
| | April | 5. Abdul Ali, A. F. M. | " | " | Seth, G. C. L. | |
| 310 | " | " Banerjee, S. | | | | |
| | " | " Bose, J. C. | | | | |



Proceedings of the Ordinary Monthly General Meetings, 1923.

JANUARY, 1923.

The Monthly General Meeting of the Society of the month was held on Wednesday, the 3rd, at 6-15 P.M.

PRESENT.

DR. P. J. BRÜHL, D.Sc., F.A.S.B., in the chair.

Members :

Abdul Wali, Maulavi.
Chanda, Mr. R.
Dikshit, Mr. K. N.
Hannah, Mr. H. Bruce.
Ivanow, Mr. W.
Jain, Mr. C. L.

Kemp, Dr. S. W.
Manen, Mr. J. van
Nashipur, Raja Bahadur of
Sinha, Kumar Gangananda
And another.

Visitors :

Mr. N. Chanda and others.

The minutes of the last meeting were read and confirmed.

Twenty presentations were announced.

The following gentlemen were balloted for and elected as Ordinary Members :—

(1) *C. R. Nair*, Commission Agent, Standard Oil Co. of New York, Blathiculam, Eranhipalam, Malabar.

Proposer : S. W. Kemp.

Secunder : N. G. Majumdar.

(2) *Phanindra Nath Mookerjee*, Philatelist, Numismatist, Lakheri, Rajputana.

Proposer : N. G. Majumdar.

Secunder : S. W. Kemp.

The General Secretary reported that Lt.-Col. A. T. Gage, I.M.S., had expressed a desire to withdraw from the Society.

The following papers were read :—

1. W. IVANOW.—*An Ismailitic Pedigree.*

2. B. M. BARUA.—*The Identification of Four Jatakas at Bharhut.*

3. HEM CHANDRA RAY.—*Why did not Alexander cross the Beas ?*

The President announced that there would be no meeting of the Medical Section in January, 1923.

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FEBRUARY, 1923.

The Monthly General Meeting of the Society of the month was held on Wednesday, the 7th, at 10 P.M.

PRESENT.

N. ANNANDALE, Esq., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the chair.

Members :

Abdul Ali, Mr. A. F. M.
Abdul Wali, Maulavi.
Agharkar, Prof. S. P.
Annandale, Dr. N.
Bose, Prof. S. R.
Brown, Dr. J. Coggin
Brown, Mr. Percy
Brühl, Dr. P. J.
Chanda, Mr. R.
Christie, Dr. W. A. K.
Cleghorn, Miss M. L.
Das Gupta, Prof. H. C.
Dikshit, Mr. K. N.
Francotte, Rev. E.
Ghattak, Prof. J. G.

Hannah, Mr. H. Bruce
Insch, Mr. J.
Iyer, Prof. L. K. A.
Jain, Mr. C. L.
Kemp, Dr. S. W.
Khuda Buksh, Mr. S.
Latif, Syed Abdul
Majumdar, Prof. N. G.
Manen, Mr. J. van.
Mookerjee, Babu Rama Prasad
Moreno, Mr. H. W. B.
Raman, Prof. C. V.
Ray, Prof. H. C.
Tipper, Mr. G. H.
And others.

Visitors :

Allen, Mr. and Mrs. G. J.
Biswas, Babu Kalipada
Da Costa, Mr. A. F. W.
Datta, Babu Atul Chandra

Fleming, Mr. A.
Sundarlingan, Mr. P. V.
And others.

The minutes of the last meeting were read and confirmed.

The following gentlemen were balloted for and elected as Ordinary Members :—

(3) *Captain George Shanks*, B.A., M.D., C.M., (McGill University) I.M.S., Professor of Pathology, Medical College, Calcutta.

Proposer : R. Knowles.

Seconder : Lieut.-Col J. W. D. Megaw, I.M.S.

(4) *Muni Jinavijayaji*, Principal, Gujarat Puratattva Mandir, Elliabridge, Ahmedabad.

Proposer : Puran Chand Nahar.

Seconder : Bahadur Singh Singhi.

(5) *Cecil Thomas Barber*, Asst. Supdt., Geological Survey of India, Calcutta.

Proposer : W. A. K. Christie.

Seconder : G. H. Tipper.

The President drew the attention of those present to the following exhibits.

List of Exhibits shown after the Meeting on the 7th February, 1923.

1. RAMAPRASAD CHANDA.—*Exhibits from the Archaeological Section of the Indian Museum acquired in 1922.*

- (a) Terracotta human pair dug out of the Maurya stratum, Bhir Mound, Taxila.
- (b) Steatite relic casket with lid dug out from Sirkap, Taxila.
- (c) Copper inkpot dug out from Sirkap, Taxila.
- (d) Glass tile dug out from Chir Tope, Taxila.
- (e) Stucco figure of Buddha dug out from Sahribahlol.
- (f) Stucco figure of Buddha dug out from Sahribahlol.
- (g) Persian vase excavated by British soldiers digging trenches north of Baghdad at a depth of some 18 feet below the surface.
- (h) Crystal stupa from Nepal (?)
- (i) Bhairava and Durga from Nepal (?)

2. N. ANNANDALE.—*Indian specimens of the Danish Balance.*

3. N. ANNANDALE.—*Photographs of Statuary from a temple in the Ganjam Dist., illustrating legends of the origin of the Ganges.*

4. N. ANNANDALE.—*Photographs illustrating house decoration in an Oriya village.*

5. S. KEMP.—*Rare Crustacea obtained at the mouth of the River Hughli, by members of the Bengal Pilot Service.*

6. SUNDER LAL HORA.—*Fishes modified for life in hill-streams.*

7. PERCY BROWN.—*Four Tibetan temple-banners (Tangkas).*

8. JOHAN VAN MANEN.—*Collection of Tibetan ethnographica.*

9. *Exhibits by the Geological Survey of India.*

- (a) Marine fossils from the Lower Gondwanas.
- (b) Schwagerina limestones from Tibet.
- (c) A new iron meteorite from Rajputana.
- (d) Aquamarines from Chitral.
- (e) Zeolites from Bombay.

10. J. COGGIN BROWN.—*A collection of Bronze Age implements from Yün-nan.*

11. D. R. BHANDARKAR.—*An unpublished copperplate of the Rāshtrakūta King Amoghavarsha ; some coins ; two Larins.*

The President announced that the next meeting of the Medical Section would be held on the 14th February, 1923.



MARCH, 1923.

The Monthly General Meeting of the Society of the month was held on Wednesday, the 7th, at 6-15 P.M.

PRESENT.

N. ANNANDALE, Esq., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the chair.

Members :

Abdul Wali, Maulavi
Agharkar, Prof. S. P.
Bose, Prof. S. R.
Brown, Dr. J. Coggin
Brühl, Dr. P. J.
Chanda, Mr. R.
Chapman, Mr. J. A.
Christie, Dr. W. A. K.
Cleghorn, Miss M. L.
Das-Gupta, Prof. H. C.

Ghosh, Mr. T. P.
Hora, Dr. S. L.
Jain, Mr. C. L.
Manen, Mr. J. van
Mitra, Prof. Panchanan
Mukherjee, Dr. G. N.
Prashad, Dr. B.
Ray, Babu Sasadhar
Vidyabhusana, Pandit A. C.
And others.

Visitors :

Biswas, Babu Kalipada
Cleghorn, Miss O.

And others.

The minutes of the last meeting were read and confirmed. Fifty-nine presentations were announced.

The General Secretary read the names of the following gentlemen who had been appointed to serve on the various Committees during 1923 :—

Finance Committee.

President.
Treasurer.
Secretary.

Sir Asutosh Mukhopadhyaya, Kt.
P. C. Mahalanobis, Esq., B.Sc.
Kumar Sarat Kumar Roy, M.A.

Library Committee.

President.
Treasurer.
Secretary.
Hon. Librarian.
Anthropological Secretary.
Biological Secretary.

Physical Science Secretary.
Two Philological Secretaries.
Medical Secretary.
Sir Asutosh Mukhopadhyaya, Kt.
J. A. Chapman, Esq.
M. M. Hara Prasad Shastri.

Philological Committee.

| | |
|--------------------------------|---------------------------------------|
| President. | Aga Muhammad Kazim Shirazi. |
| Treasurer. | Babu Rama Prasad Chanda. |
| Secretary. | Two Philological Secretaries. |
| Sir Asutosh Mukhopadhyaya, Kt. | Dr. Suhrawardy. |
| M. M. Haraprasad Shastri. | Shams-ul-ulma Maulavi Hedayet Hosain. |
| Babu Nilmani Chakravarti. | |

Hon. Joint Secretaries, Science Congress.

| | |
|---------------------|--------------------|
| Dr. J. L. Simonsen. | Prof. C. V. Raman. |
|---------------------|--------------------|

Building Committee.

| | |
|--------------------------------|--------------------------------|
| President. | H. A. Crouch, Esq. |
| Treasurer. | W. K. Dods, Esq. |
| Secretary. | M. M. Haraprasad Shastri. |
| Sir Asutosh Mukhopadhyaya, Kt. | W. A. K. Christie, Esq., Ph.D. |
| Sir R. N. Mukherjee, K.C.I.E. | |

Publication Committee.

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| President. | Physical Science Secretary. |
| Treasurer. | Anthropological Secretary. |
| Secretary. | Medical Secretary. |
| Sir Asutosh Mukhopadhyaya, Kt. | Hon. Librarian. |
| Biological Secretary. | Two Philological Secretaries. |

MSS. Purchase Committee.

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|--------------------------------|-------------------------------|
| Sir Asutosh Mukhopadhyaya, Kt. | Secretary. |
| A. Suhrawardy, Esq., M.A. | Two Philological Secretaries. |

Hon. Numismatist.

C. J. Brown, Esq., M.A.

The following gentlemen were balloted for and elected as Ordinary Members :—

(6) *P. Nandi*, M.D., Professor of Pharmacology, Carmichael Medical College, 34-1, Beadon Street, Calcutta.

Proposer : Ekendra Nath Ghosh.

Seconder : S. N. Bal.

(7) *L. Dudley Stamp*, B.A., D.Sc., Geologist, c/o. Postmaster, Rangoon (Killiecrankie, Sidcup, Kent, England).

Proposer : J. Coggin Brown.

Seconder : W. A. K. Christie.

(8) *N. Gupta*, Bar.-at-Law, Calcutta Club.

Proposer : W. A. K. Christie.

Seconder : G. H. Tipper.

(9) *Lieut.-Col. A. B. Fry*, C.I.E., D.S.O., M.D. (Lond.), I.M.S., Professor of Hygiene, Calcutta School of Tropical Medicine.

Proposer : J. W. D. Megaw.

Seconder : R. Knowles.

(10) *George Thomas Labey*, Bengal Pilot Service,
5, Loudon Street, Calcutta.

Proposer : W. A. K. Christie.

Seconder : J. Coggin Brown.

The following papers were read :—

1. LILY STRICKLAND-ANDERSON.—*Music and the Hindu Pantheon.*

2. GANGANANDA SINHA.—*On some Maithili Dramas of the 17th and 18th Centuries.*

3. C. V. RAMAN.—(a) *A theory of the Viscosity of Liquids*,
(b) *Molecular Aelotropy of Liquids.*

4. N. ANNANDALE.—*Bivalve Molluscs injuring Brick-work in the Calcutta Docks.*

5. P. J. BRÜHL and KALIPADA BISWAS.—*On a New Species of Cylandrospermum from Bengal.*

6. L. DUDLEY STAMP and LESLIE LORD (communicated
by J. Coggin Brown).—*A Preliminary Note on the Ecology of
part of the Riverine Tract of Burma.*

7. S. L. HORA.—*Zoological Results of a Tour in the Far
East (Fish, Pt. I).*

8. B. PRASHAD.—*Revision of Kobelt's Nomenclature of the
Indian Ampullariidae.*

The President drew attention to the following exhibits :—

1. N. ANNANDALE.—

Copy of C. W. Beebe's "A Monograph of the Pheasants."
4 vols.

JOHAN VAN MANEN.—

A Collection of materials on the 84 Siddhas.

(a) A Tibetan block-print containing woodcuts representing them.

(b) A Tibetan picture, newly received from Lhasa and specially painted, containing them.

(c) A Modern Nepalese painted picture of them, and larger pictures of 8 separate Siddhas in the same style (Lent by Mr. Binayatosh Bhattacharya).

(d) Some Indian Vernacular works on some of the 84 Siddhas (Lent by Mr. A. C. Vidyabhusana).

(e) Some European works on the subject.

The President announced that the next Meeting of the Medical Section would be held on the 14th of March, 1923.

APRIL, 1923.

The Monthly General Meeting of the Society of the month was held on Wednesday, the 4th, at 6-15 P.M.

PRESENT.

N. ANNANDALE, ESQ., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the chair.

Members :

Abdul Wali, Maulavi
Agharkar, Prof. S. P.
Brown, Dr. J. Coggin
Chanda, Mr. R.
Chaudhuri, Dr. B. L.
Christie, Dr. W. A. K.
Cleghorn, Miss M. L.
Dikshit, Mr. K. N.
Ghosh, Mr. T. P.
Gupta, Mr. N.

Hora, Dr. S. L.
Jain, Mr. C. L.
Knowles, Major R.
Latif, Syed Abdul
Manen, Mr. J. van
Moreno, Mr. H. W. B.
Prashad, Dr. B.
Tipper, Mr. G. H.
And others.

Visitors :

Miss O. Cleghorn.

And others.

The minutes of the last meeting were read and confirmed. Sixteen presentations were announced.

The following gentlemen were balloted for and elected as Ordinary Members :

(11) *Jatis Chandra De*, M.A. (Lond.), Student, 11, Ray Street, Elgin Road, P.O., Calcutta.

Proposer : Syed Abdul Latif.

Seconder : Rama Prasad Chanda.

(12) *Bibhuti Rai Chaudhuri*, Lawyer, M.A., B.L., Ph.D., D.Sc., etc.

Proposer : Sir Asutosh Mukherjee

Seconder : C. V. Raman.

(13) *Brij Mohan Sharma*, Educational Dept., Asst. Head Master, D.A.V. High School, Lucknow, "Lahara," Mathras.

Proposer : Sir Asutosh Mukherjee.

Seconder : W. A. K. Christie.

(14) *A. Alker*, Merchant, 4, Bankshall Street, Calcutta.

Proposer : W. A. K. Christie.

Seconder : G. H. Tipper.

The following papers were read :—

1. ABDUL WALL.—*Hinduism according to Muslim Sufis.*
2. W. IVANOW.—*A 'Witch-case' in Mediæval India.*

3. HARIDAS MITRA.—*Epigraphic Notes.*

4. H. C. ROBINSON and C. B. KLOSS.—*Some Remarks on Mr. C. Stuart Baker's New Volume on the Birds (Second ed.) in the 'Fauna of British India.'*

5. *Zoological Results of the Percy Sladen Trust Expedition to Yunnan in 1922, under the leadership of PROF. J. W. GREGORY, F.R.S.*

(a) J. COGGIN BROWN.—A brief account of the country traversed by the Expedition.

(b) N. ANNANDALE.—*Land Molluscs.*

(c) B. PRASHAD.—*Bivalve Molluscs.*

(d) S. W. KEMP.—*Decapod Crustacea.*

The General Secretary reported the loss by death of the following members :—

- | | |
|--------------------------|------------------------|
| 1. E. Vredenburg. | 3. W. E. M. Campbell. |
| 2. Khagendra Bhusan Roy. | 4. Sir C. S. Kesteven. |

The General Secretary reported that the following members had expressed a desire to withdraw from the Society :—

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|---------------------------------|------------------------|
| 1. A. S. Allan. | 8. C. R. Elmes. |
| 2. W. R. C. Brierly. | 9. A. M. Heron. |
| 3. Netai Charan Law. | 10. G. R. Clark. |
| 4. Lt.-Col. R. F. S. Schomberg. | 11. Bhagavati Sahay. |
| 5. Lt.-Col. C. L. Peart. | 12. E. H. Hankin. |
| 6. A. D. Pickford. | 13. Sir C. A. Bell. |
| 7. Lt.-Col. T. C. McCombie | 14. Sir W. R. Gourley. |
| Young. | 15. O. F. Jenkins. |

The President read an obituary notice of E. Vredenburg. (See below.)

The President announced that the next meeting of the Medical Section would be held on the 11th April, 1923.

MAY, 1923.

The Monthly General Meeting of the month was held on, Wednesday, the 2nd, at 6-15 P.M.

PRESENT.

N. ANNANDALE, Esq., C.I.E., D.Sc., C.M.Z.S., F.I.S. F.A.S.B., F.R.S.E., President, in the chair.

Members :

Bose, Prof. S. R.
Brown, Dr. J. Coggin
Chanda, Prof. R.
Chapman, Mr. J. A.

Christie, Dr. W. A. K.
Das-Gupta, Prof. H. C.
Hora, Dr. S. L.
Jain, Mr. C. L.

Knowles, Major R.
Majumdar, Prof. N. K.
Manen, Mr. J. van
Mookerjee, Hon. Justice Sir Asu
tosh

Moreno, Mr. H. W. B.
Mukerjee, Dr. G. N.
Prashad, Dr. B.
Raman, Prof. C. V.
And others.

Visitors :

Kumar, Babu Surendra Nath
Martin, Mrs. D. A.
Martin, Mr. J. A.

Mukerjee, Babu Birendra Nath
Ottley, Rev. D. B., and Mrs.
And others.

The minutes of the last meeting were read and confirmed.

Twenty presentations were announced.

The following gentlemen were balloted for and elected as Ordinary Members :—

(15) *Major W. L. Harnett*, I.M.S., Supdt., Campbell Hospital, Sealdah House, Lower Circular Road, Calcutta.

Proposer : U. N. Brahmachari.

Seconder : Lt.-Col. J. W. D. Megaw.

(16) *E. O. Shebbeare*, Dy. Conservator of Forests, c/o. Office of Conservator of Forests, Darjeeling.

Proposer : D. H. Lees.

Seconder : C. A. Bentley.

(17) *Baron H. Rüdrt von Collenberg*, German Consul-General, 2, Store Road, Ballygunge, Calcutta.

Proposer : Sir Asutosh Mookerjee.

Seconder : N. Annandale.

(18) *H. P. Möller*, Merchant, 18, Ballygunge Circular Road, Calcutta.

Proposer : Sir Asutosh Mookerjee.

Seconder : N. Annandale.

(19) *R. M. A. Bhukhanwala*, Merchant, Partner of Bhukhanwala & Sons, 10, Canning Street, Calcutta.

Proposer : Sir Asutosh Mookerjee.

Seconder : Dr. Bhandarkar.

The following papers were read :—

1. B. PRASHAD.—*Observations on the Luminosity of some Animals in Gangetic Delta.*

2. N. ANNANDALE.—*Plant and Animal Designs in the Mural Decorations of an Uriya Village* (Illustrated with lantern slides).

3. JOHAN VAN MANEN.—*On the 44th verse of the Dhammapada.*

The General Secretary reported the death of the following Member :—

Raja A. V. Juggarao.

The General Secretary reported that the following members had expressed a desire to withdraw from the Society :—

J. C. More.

Vanamali Chakravarti.

P. N. Tagore.

A. T. Gage.

The President announced that Babu Amulya Charan Mitra, being largely in arrears with his subscriptions, had been declared defaulter and that his name would be posted in accordance with Rule 38.

The President announced that the next Meeting of the Medical Section would be held on the 9th May, 1923.



JUNE, 1923.

The Monthly General Meeting of the month was held on Wednesday, the 6th, at 6-15 P.M., in the Museum House, on account of repairs in progress in the Society's Buildings.

PRESENT.

N. ANNANDALE, Esq., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President in the chair.

Members :

Bose, Prof. S. R.
Brown, Dr. J. Coggin
Brühl, Dr. P. J.
Chakladar, Prof. H. C.
Chaudhuri, Dr. B. L.
Christie, Dr. W. A. K.
Das-Gupta, Prof. H. C.
Hora, Dr. S. L.
Jain, Mr. C. L.

Mahalanobis, Prof. P. C.
Majumdar, Prof. N. K.
Manen, Mr. J. van
Mukherjee, Dr. G. N.
Nahar, Mr. P. C.
Ray, Prof. H. C.
Seth, Mr. M. J.
Sarvadhikari, Sir Deva Prosad
And others.

Visitors :

Biswar, Mr. K. P.
Kramrisch, Dr. S.

Ottens, Mr. N.
And others.

The Minutes of the last meeting were read and confirmed. Twenty presentations were announced.

The following gentlemen were balloted for election as Ordinary Members :—

(20) J. H. Hutton, I.C.S., D.C. Naga Hills and Hon. Director of Ethnography, Assam, Kohima, Naga Hills, Assam.

Proposer : J. E. Webster, C.S.I., C.I.E.

Seconder : H. C. Barnes, C.I.E.

(21) *H. Ottens*, Civil Engineer, 1, Wellesley Place, Calcutta.

Proposer : W. Ivanow.

Seconder : Johan van Manen.

(22) *A. Howard*, Imperial Economic Botanist to the Government of India, Pusa, Bihar.

Proposer : Dr. N. Annandale.

Seconder : Dr. P. J. Brühl.

(23) *Kali Das*, Superintendent, Forests, Jubbal State, P.O. Chopal, via Simla.

Proposer : Dr. Baini Prashad.

Seconder : Dr. Sunder Lal Hora.

The following papers were read :—

1. SUNDER LAL HORA, D.Sc.—*The Adhesive Apparatus on the Toes of certain Geckos and Tree-frogs.*

2. MESROB J. SETH.—*A Manuscript Koran in Classical Armenian.*

3. L. RAMA RAU.—*On the age of the Uitatur Marine transgression.*

4. RAMAPRASAD CHANDA, B.A., F.A.S.B.—*Note on the Discovery of Supposed Neolithic Writing in India.*

5. RAMAPRASAD CHANDA, B.A., F.A.S.B.—*Prof. Mazumdar on the Dates of the Sanchi Inscriptions.*

6. N. K. MAJUMDER, M.A.—*Sidhānta-Sekhara of Śrīpati.*

7. C. BODEN KLOSS.—*On Blyth's Bulbul (*Xanthixus flavescens*).*

8. P. C. MAHALANOBIS, M.A.—*A first study of the Head-length of Bengal Castes and Tribes.*

The General Secretary reported loss by death of the following members :—

Prof. T. W. Rhys Davids, an Honorary Fellow. Rev. J. D. Bate, an Associate Member.

The General Secretary reported that the following members had expressed a desire to withdraw from the Society :—

W. W. K. Page.

Dewan Bahadur Seth Ballabhdas.

The President announced that Babu Amulya Charan Mitra, being largely in arrears with his subscriptions, had been posted as defaulting member since the last meeting and that his name had been removed from the member-list.

The President announced that there would be no meeting of the Medical Section during the month.

The President drew attention to the following exhibits :—

1. Dr. J. COGGIN BROWN—

Specimens of *Ostrea gryphoides* Schlotheim recently found in Calcutta excavations.

2. Dr. W. A. K. CHRISTIE—

Specimens of Chalcedony bearing impressions of Chabazite crystals.

3. BABU CHOTE LAL JAIN—

Ten Jain religious copper and brass plates (*yantras*) depicting Daśadharmā (ten vows), Ratnatraya (faith, knowledge and conduct), Pañchaparamēṣṭhi (five supreme beings), etc.



JULY, 1923.

The Monthly General Meeting of the Society of the Month was held on Wednesday, the 4th, at 6-15 P.M., in the Museum House, on account of repairs in the Society's Buildings.

PRESENT.

N. ANNANDALE, Esq., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the chair.

Members :

Abdul Wali, Maulavi
Agharkar, Prof. S. P.
Bose, Prof. S. R.
Brown, Dr. J. Coggin
Brühl, Dr. P. J.
Christie, Dr. W. A. K.
Das-Gupta, Prof. H. C.
Hannah, Mr. H. Bruce
Insch, Mr. Jas.
Iyer, Prof. L. K. A.
Mahalanobis, Prof. P. C.

Majumdar, Prof. N. G.
Manen, Mr. J. van
Mookerjee, Hon. Justice Sir Asutosh
Moreno, Mr. H. W. B.
Mukherjee, Dr. G. N.
Ottens, Mr. H.
Raman, Prof. C. V.
Sewell, Major R. B. S.
Singh, Kumar Gangananda
And others.

The Minutes of the last meeting were read and confirmed. Eighteen presentations were announced.

The following gentlemen were balloted for and elected as Ordinary Members :—

(24) *F. S. Kerr*, Banker, 4, Clive Street, Calcutta.

Proposer : N. Annandale.

Seconder : P. J. Brühl.

(25) W. H. Rethmeier, Banker, Maundeville Gardens, Calcutta.

Proposer : N. Annandale.

Seconder : P. J. Brühl.

The following papers were read :—

1. J. COGGIN BROWN.—*On the Occurrence of Ostrea gryphoides Schlotheim in Calcutta.*

2. H. C. DAS-GUPTA.—*On the Fossil Pectinidae from Hathab, Bhavanagar State (Kathiwar).*

3. PRAMATHA NATH MISRA.—*Lakhsman Samvat.*

4. H. C. RAY.—*Allusions to Vasudeva Krishna Devaki-putra in Vedic Literature.*

The General Secretary reported that the following members had expressed a desire to withdraw from the Society :—

1. S. K. Banerjee.

2. B. C. Dutt.

The President announced that there would be no meeting of the Medical Section during the month.

The President drew attention to the following exhibits :—

1. R. B. S. SEWELL.—

Photographs illustrating the formation and general topography of typical Coral Island.

2. JOHAN VAN MANEN.—

Two manuscripts of the Mahāvyutpatti :

(a) By Csoma di Kōros (Sanskrit, Tibetan, English).

(b) By Dr. Cordier (Sanskrit, Tibetan).

Printed editions :

Two Russian and two Japanese editions.



AUGUST, 1923.

The Monthly General Meeting of the Society of the month was held on Wednesday, the 1st, at 6-15 P.M., in the Museum House, on account of repairs in the Society's Buildings.

PRESENT.

N. ANNANDALE, ESQ., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the chair.

Members :

Abdul Wali, Maulavi
 Agharkar, Dr. S. P.
 Bose, Prof. S. R.
 Brühl, Dr. P. J.
 Chanda, Mr. R.
 Cleghorn, Miss M. L.
 Das-Gupta, Prof. H. C.
 Ghosh, Mr. T. P.
 Gurner, Mr. C. W.

Ivanow, Mr. W.
 Jain, Mr. C. L.
 Knowles, Major R.
 Kumar, Mr. A.
 Majumdar, Prof. N. K.
 Manen, Mr. J. van
 Prashad, Dr. B.
 And others.

Visitors :

Biswas, Mr. K. P.
 Chopra, Mr. B. N.
 Cleghorn, Miss O.
 Gurner, Mrs. C. W.

Kelley, Mr. R. F.
 Sarma, Pandit H.
 Shanty, Mr. H.
 And others.

The Minutes of the last meeting were read and confirmed.
 Twenty-two presentations were announced.

The following gentlemen were balloted for and elected as Ordinary Members :—

(26) *Alexander Montagu Stow*, M.A. (Cantab.), O.B.E., I.C.S., Punjab Commission, Settlement Commissioner, Kashmir.

Proposer : Sir Asutosh Mookerjee.
 Seconder : J. van Manen.

(27) *Bhupendra Nath Basu*, M.A., B.L., Member of the Council of the Secretary of State, 14, Balaram Ghosh Street, Calcutta.

Proposer : Sir Asutosh Mookerjee.
 Seconder : J. van Manen.

(28) *Kalipada Biswas*, M.A., Botanical Laboratory, College of Science, 35, Ballyganj Circular Road, Calcutta.

Proposer : P. J. Brühl.
 Seconder : N. Annandale.

The President drew attention to a course of public Lectures on the Ganges, to be held in the Indian Museum, and read a note to the members calling for volunteers to help in the work of the Society.

The following papers were read :—

1. MAJOR F. C. FRASER.—*Zoological Results of the Percy Sladen Trust Expedition to Yunnan, under Prof. G. W. Gregory, in 1922—Dragonflies.*

2. B. PRASHAD.—*Observation on the Respiration of the Ampullariidae.*

3. Y. R. GUPTA.—*A Grant of the Vākātaka Queen Prabhāvatiguptā, 19th year of Pravarasena II.*

4. W. IVANOW.—*Notes on some rare manuscripts in the Society's Persian Collection.*

The General Secretary reported that the following members had expressed a desire to withdraw from the Society :—

1. Ali Riza F. J. Brandon.

2. J. T. Marten.

The President announced that there would be no meeting of the Medical Section during the month.

The President drew attention to the following exhibits :

1. J. COGGIN BROWN.—

Large crystals of Topaz from Sakaugyi, Ruby Mines Dist., Burma.

2. H. C. DAS-GUPTA.—

Specimens of *Macrophthalmus latreillei*, Desm.

3. N. ANNANDALE.—

Recent and Fossil shells illustrating parallel evolution in water-snails of the Family Viviparidae.

4. RAMAPRASAD CHANDA.—

A 17th century astrolabe from Benares, made by Muhammad Muqim in 1048 H. (1638 A.D.).

5. JOHAN VAN MANEN.—

A small votary stūpa from Buddha Gaya, inscribed.



SEPTEMBER, OCTOBER, 1923.

No meetings.



NOVEMBER, 1923.

The Monthly General Meeting of the Society of the month was held on Wednesday, the 7th, at 6-15 P.M., in the Museum House, on account of repairs in the Society's Buildings.

PRESENT.

N. ANNANDALE, ESQ., C.I.E., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., F.R.S.E., President, in the chair.

Members :

Abdul Wali, Maulavi
Brown, Dr. J. Coggin
Kazim Shirazi, Aga Muhammad

Manen, Mr. J. van
Prashad, Dr. B.
Raman, Prof. C. V.

Visitor :

One.

The Minutes of the last meeting were read and confirmed. Eighty-four presentations were announced.

The President read an obituary notice of the late Sir H. H. Hayden (See below).

The President reported on the following matters of interest :—

- (a) Issue of two new volumes of M. M. Haraprasad Shastri's Catalogue of Sanskrit MSS. on Veda and Geography.

Resolved to put on record and convey to M. M. Shastri the congratulations of the meeting.

- (b) The progress of the building operations in the Society's Premises.

The following papers were read :—

1. N. ANNANDALE.—*Aquatic Gastropods (Zoological Results of the Percy Sladen Trust Expedition to Yunnan in 1922).*

2. W. M. TATTERSALL.—*Crustacea Amphipods (Zoological Results of the Percy Sladen Trust Expedition to Yunnan in 1922).*

3. R. B. S. SEWELL.—*Geographic and Oceanographic Research in Indian Waters.*

4. SAT KORI DUTTA.—*On a Peculiar Disposition of the Liver and the Kidney in the Genera Clarias and Saccobranchus.*

5. R. C. MAJUMDAR.—*The Date of the Khadga Dynasty of Bengal.*

The General Secretary reported that the following member had expressed a desire to withdraw from the Society :—

Promode Prokash Chatterjee.

The President announced that there would be no meeting of the Medical Section during the month.



DECEMBER, 1923 .

The Monthly General Meeting of the Society of the month was held on Wednesday, the 5th, at 6-15 P.M.

PRESENT.

R. D. MEHTA, Esq., C.I.E., J.P., in the chair.

Members :

Bhandarkar, Dr. D. R.
Das-Gupta, Prof. H. C.
Dikshit, Mr. K. N.
Ghosh, Mr. T. P.
Gupta, Mr. N.
Hannah, Mr. H. Bruce
Ivanow, Mr. W.

Iyer, Mr. L. K. A.
Kazim Sirazi, Aga Muhammad
Manen, Mr. J. van
Moreno, Mr. H. W. B.
Raman, Prof. C. V.
Vidyabhusana, Pandit A. C.

Visitor :

One.

The Minutes of the last meeting were read and confirmed.

Thirty-two presentations were announced.

The following gentlemen were balloted for and elected as Ordinary Members :—

(29) *Shahanshah H. Rizvi*, B.A. (Alig.), Journalist and Zamindar, 14, Victoria Street, Lucknow (Oudh).

Proposer : M. Kazim Shirazi.

Seconder : Abdul Wali (Khan Sahib).

(30) *B. N. Chopra*, Asst. Superintendent, Zoological Survey of India, Indian Museum, Calcutta.

Proposer : B. Prashad.

Seconder : S. L. Hora.

(31) *F. J. Meggitt*, Professor of Biology, University College, Rangoon.

Proposer : B. Prashad.

Seconder : S. L. Hora.

(32) *Ashutosh Shastri*, Principal, Sanskrit College, Calcutta.

Proposer : Haraprashad Shastri.

Seconder : N. Annandale.

(33) *N. F. Barwell*, Captain (General Staff), H.M. Forces, 8, Staff Barracks, Fort William, Calcutta (and Beacon Hill, West Runton, Norfolk, England).

Proposer : N. Annandale

Seconder : Johan van Manen.

(34) *P. S. Jackson*, Engineer, General Manager for India, The English Electric Co., Ltd., D-4, Clive Buildings, Calcutta.

Proposer : Johan van Manen.

Seconder : W. Ivanow.

(35) *Vishnu Tatyaji Korke*, Fellow Royal College of Physicians (Edin.), Central Research Institute, Kasauli.

Proposer : N. Annandale.

Seconder : B. Prashad.

(36) *H.H. Lakshman Sen*, Raja of Suket State, Suket State, Punjab.

Proposer : N. Annandale.

Seconder : B. Prashad.

(37) *Shiva Bandhan Pande*, Retired Tahsildar and Zamindar, Ramaipatti, Mirzapur.

Proposer : Syama Behari Misra.

Seconder : P. K. Telang.

(38) *Dr. Gunvantray Chunilal Sheth*, N.D., etc., Agricultural and Medical, Shethfalia, Post Bulsar, Dist. Surat, Bombay Presy.

Proposer : W. Ivanow.

Seconder : Johan van Manen.

The following papers were read :—

1. ABDUL WALL.—*Life and Letters of Malik 'Aynu'l-Mulk Mahru, and Side-Lights on Firuz Shah's Expeditions to Lakhnauti and Jajnagar.*

2. W. IVANOW.—*A Brief Review of the Persian Sufic Works in the Society's Collection of Mss.*

3. JOHAN VAN MANEN.—*On the character 常 (Ch'ang) in Lao Tsze's Tao-King.*

The President announced that the next Meeting of the Medical Section would be held on the 12th December, 1923.

Obituary Notices.

E. VREDENBURG.

(1870—1923.)

By the death of Ernest Vredenburg the Society has lost an active member of many years' standing. His contributions to our Journal were neither numerous nor lengthy, but he rendered the publication committee good service on many occasions and always took a real interest in the work of the Society, while his important contributions to geological science and also to the history of art made him a very worthy and conspicuous member.

Vredenburg was a man of strangely mixed personality, which perhaps only a few of his intimates could appreciate at its full value. Almost as much an artist as a scientific man he has told me that in his youth he hesitated between a musical and a geological career. Both his family history and his training gave him a broad outlook on life that was not always advantageous to him in an official atmosphere. His cosmopolitan experience, indeed, was by no means an unmitigated blessing. He had no proper language of his own, for he had been brought up mainly in France and his English was always that of a foreigner. He used to say that his French was as bad, but perhaps in this he did himself an injustice. His name was Dutch; his father was a British Consul in West Africa, his mother a French lady born or brought up in South America. He even claimed, half in joke, solar descent through "the royal blood of the Incas of Peru." All this made it impossible for him to accept the official British view without question and even led him at times into unreasonable protests against modern civilization—protests not illogical in themselves or devoid of sound sense, but exaggerated and unbalanced, as when he used to say that European civilization ceased to progress in the thirteenth century and had gone backwards ever since. He had a profound contempt for modern European art and often drew no line between art and civilization; but his sympathy with Oriental culture did not render him a fanatic and, except in the excitement of debate, he praised with due discrimination.

Of the value of his geological work it is not for me to speak in detail, but there are certain aspects which must appeal to every scientific man. The first is his breadth of outlook. Whether he was describing the mountains of Baluchistan or a new species of fossil shell he was equally at home

with his subject and his artistic leanings and strong prejudices never rendered him inaccurate, superficial or theatrical. His later years, in much physical suffering, were devoted mainly to palæontology, but to palæontology of an enlightened kind in which the continuity between recent and fossil forms was never absent from his mind. He had the moral courage for great issues, without neglecting the necessary drudgery of detail.

In the early part of his service in India he had travelled far and wide, from Burma to the Persian frontier and beyond, and his note-books were full of observations on men and things. As he lay on a bed of sickness month after month he seemed to be just beginning some great comprehensive work, of which death prevented the very inception. Apart from geology he was engaged in gathering materials for a vast history of pattern and was always eager to discuss the origin and progress from age to age and land to land of any widespread design in decorative art. He had published many papers on different branches of geology and several on Indian art; he was one of the most brilliant pianists of his time in India; his scientific work was known to all geologists and was recognized in the Vatican by the bestowal upon him of a knighthood of an ancient order, but on his friends he made the impression of a man capable of still higher things, if time were given him.

I have attempted no formal biography, no list of his memoirs or of the events in his official career. These things will doubtless be set forth in an official biography. My aim has been rather to give a personal impression of the intellectual side of the man. This is not the place to talk of the many kind things he did, especially to talent in adversity, of his filial piety or of his religious faith. His life-work remains enshrined in the "Records" and the "Memoirs of the Geological Survey of India" and in the memory of his friends. "After Life's fitful fever he sleeps well." N. ANNANDALE.

(Read in the Ordinary Monthly Meeting, 4th April, 1923.)

SIR HENRY HUBERT HAYDEN, F.R.S., C.S.I.

(1869-1923).

Henry Hubert Hayden was born in Londonderry of a well-known Irish family in 1869 and was educated in Hilton College, Natal, where he spent a considerable part of his early life, and at Trinity College, Dublin. He came to India as a member of the Geological Survey in the beginning of 1895 and joined the Asiatic Society of Bengal in 1897. He became

Director of his department in 1910 and held the post for eleven years. He was President of this Society in 1917 and 1918, after serving it 9 years as a member of the Council. He contributed to the publications of the Geological Survey of India a long series of papers on most branches of geology, but perhaps his most important work, undertaken in collaboration with Sir Sydney Burrard, F.R.S. was a monograph on the geography and geology of the Himalayas published independently by order of the Government of India. His presidential address to the Asiatic Society of Bengal was on 'the Age of the Earth.'

In private life Hayden was a man of great generosity. Naturally impulsive and adventurous and often tortured by acute neuralgia, he exercised great reserve and self-control and few were aware of his sufferings. Although naturally colour-blind, he had trained his eye to appreciate differences in tint in such a way that this physical defect interfered little with mineralogical work. He took part as geologist in the military expedition to Tibet in 1903-1904 and returned to that country in the temporary service of the Tibetan Government in 1922. In the meanwhile he had made himself acquainted with the Tibetan language, which he spoke fluently—an example of the determination with which he carried through everything he did. He took a keen interest in Oriental and especially Tibetan art, of which he had accumulated a small but choice collection, and was a man of wide general reading and intellectual interests.

His end was what some call tragic, for it was swift and unexpected. He was killed by an avalanche while mountaineering in the Alps, a pursuit to which he was extremely fond.

N. ANNANDALE.

(Read in the Ordinary Monthly Meeting, 7th November, 1923.)

Deputations.

CENTENARY ROYAL ASIATIC SOCIETY OF GREAT
BRITAIN AND IRELAND.

London, July 17th, 1923.

Report by Sir Thomas H. Holland.

6, Wetherby Gardens,
London, S.W. 5.
July, 23rd, 1923.

The General Secretary,
Asiatic Society of Bengal.

Dear Sir,

Referring to your letter No. 1182 of the 1st June last, asking me to act as one of the representatives of the Asiatic Society of Bengal at the Centenary Celebration of the Royal Asiatic Society, I have the honour to report as follows :—

I wrote to Colonel Phillott in order to arrange with him for a joint Address on behalf of the A.S.B., but Colonel Phillott told me that your letter had reached him too late to enable him to alter his plans for a visit to Scotland. I was consequently compelled to act alone, but I consulted Sir Rajendra Nath Mookerjee, who happened to be in London, and he approved of the Address to the Royal Asiatic Society, of which I now enclose a copy. I hope that this Address also has the approval of the Council of the Society.

You will notice from the programme of the Centenary Meeting that the A.S.B. took the senior place among the Society's representatives, and throughout the whole of the proceedings frequent references were made to the respect with which the A.S.B. is regarded by all Orientalists.

At the Centenary Dinner, which was held on the 20th instant, I was asked by Lord Chalmers to support His Excellency the Japanese Ambassador in proposing the Royal Asiatic Society, and I enclose a report of the Speech made on your behalf.

The rest of the proceedings of the Conference held during the past week will be recorded in the transactions of the Society, and will be available to you in due course.

I feel sure that our President and his colleagues on the Council will be pleased to know that one of the Orientalists who took part in the Conference was Monsieur Émile Senart, who, as you know, was one of the six Honorary Members elected to celebrate the Centenary of the A.S.B. 39 years ago. He is now one of the two surviving members, Professor A. H. Sayce being the other. Monsieur Senart frequently, in his conversations with me, expressed his great respect for the work which has been done by the A.S.B. On the other hand, the great admiration which was shown to him by all the delegates at the Conference shows that the A.S.B. made a wise selection when they elected him to be an Honorary Member as long ago as 1884.

I am sure that if our President had been able to attend this Meeting he would have been gratified to realise that the great work done by himself and his colleagues of the A.S.B. is followed with interest and appreciation by the orientalists of Europe and America.

Yours faithfully,
(Sd.) T. H. HOLLAND.

Centenary Meeting of the Royal Asiatic Society, July 17th, 1923.

Address by Sir Thomas H. Holland representing the Asiatic Society of Bengal.

It is just forty years since the Asiatic Society of Bengal celebrated the centenary of its foundation, and, among the many friendly communications then received from abroad, one of the most treasured was a message of congratulation from this distinguished Society to its acknowledged parent.

The relationship between the two Societies is closer than that of normal affiliation or community of object. Your Founder and first Director had been previously for nine years President of the Asiatic Society of Bengal. It was there, eleven years after he as a young writer of 17 had joined the East India Company's service, that he took up the study of Sanskrit and joined the rapidly growing company of men who were attracted by Sir William Jones' discovery of the relationship of Sanskrit to the European classical languages, and by his recognition of correlation lines with European chronology, establishing a datum for Indian history.

Colebrooke's name is still held in reverence by Indian scholars, officials and lawyers as the one rightly chosen to complete Sir William Jones' unfinished task of translating and editing the great *Digest of Hindu Laws*.

Since he gathered around him a company of kindred spirits at the Thatched House in St. James' Street on the memorable 15th March 1823, other retired members of the Asiatic Society of Bengal have formed a continuous stream of recruits to this Society, which, like that in Bengal, was formed here and has since been successfully maintained to carry on the wide programme laid down by the original Bengal resolution, namely, an "enquiry into the history and antiquities, arts, sciences and literature of Asia."

The Asiatic Society of Bengal has now entrusted to me the privilege and honour of conveying to the Royal Asiatic Society its sincerest congratulations, recognising with maternal pride, that whilst your Society, during the latter part of its century, has specialised in branches of Oriental literature, archæology and history, its list of members has continued to expand, its membership is regarded in India as a coveted privilege and distinction, and its publications have maintained their recognised standard of high quality.

My friend Sir Rajendra Nath Mookerjee, a member of the Council of the Asiatic Society of Bengal, who is present to-day, wishes with me respectfully to express the hope that your Society will continue to inspire those who enter the Indian service, and will still continue to receive as recruits on their retirement those who have verified the value of Indian culture

as one of the links by which the two countries are bound in an eternal friendship as parts of the King's great Empire.

(*Sd.*) T. H. HOLLAND.

Remarks by Sir Thomas Holland at the Centenary Dinner,
Royal Asiatic Society, July 20th, 1923.

My selection for the honour of supporting His Excellency is due obviously to the accident that I represent at your Centenary the senior among the Societies who have sent delegates to express their affectionate respect for your Society.

For a purely scientific man to be selected for this privilege—and by the Mother of all Asiatic Societies—requires some explanation.

As Dr. Thomas has explained, the Bengal Society maintains to day, as definitely and fully as it did when founded, its activity in natural and physical science. The scope of the Royal Asiatic Society was first designed on similar lines, but, whilst you have maintained your wide geographical range, you have dropped your science, and have gradually specialised in Asiatic archaeology, philology and history.

Indeed, it is because of your activities that the word "Asiatic" has acquired this special significance in the world of culture, just as the word "Oriental," which originally referred to the geographical origin of the unusually hard and lustrous gem-stones brought to Europe by the East India Company, is now applied by the European lapidary to any gem-stone of special lustre and beauty, wherever it comes from.

Those of our Bengal members, on their retirement to England, who are devoted to science, naturally turn to their own specialised institutions in London, with the Royal Society at their head. Those, however, who were active members of the Philological Branch when in India, naturally look forward to membership of this Society on their retirement.

Thus it follows that there are probably few members of the Bengal Society at home who are qualified to appreciate critically the great work done by the Royal Asiatic Society, except those who are already, or at any rate ought to be, members of it themselves.

In this difficult position, the Bengal Society has been compelled to choose as its delegate one of its members who is able to do no more than admire the work of this Society from an outside standpoint; but they have appointed probably the only member here who has, during the past 32 years, gone through every phase of activity connected with the old Society in Bengal—first as an ordinary member; then as a member of council, then as general secretary, as vice-president, as president, as a fellow and as an honorary fellow.

When I thought the Asiatic Society had no further trust to impose, they did me the honour of asking me to be their delegate at your Centenary celebration.

My science is to most of you a modern study ; the science is, but the geologist deals with a living past, beside which the creators of your archæological remains are but the upstarts of yesterday.

You deal, however, with the works of men, men whose descendants in India to-day are still swayed by the traditions of their great past ;—traditions which have a real influence on the character and outlook of the people living in India to-day.

There was not an Indian official at the Centenary meeting on Tuesday who did not feel that his thoughts were exactly expressed by the Prince of Wales—and expressed with the aphoristic crispness which is the special characteristic of that Royal student of men—when, in referring to the blend of scholarship with official duties, he stated that “ this scholarly spirit is in itself a manifestation of the loftiest conceptions of public service ; for rightly to serve is rightly to understand those among whom service is passed.”

As a junior official, as a private visitor to India and as a member of the Government, I can recall many instances of the way in which the Asiatic Societies have facilitated the work of administration.

There are various Societies in this country designed to bring together the East and West. Their aims are worthy ; their good effect sometimes noticeable. But the only political harmony that is natural, real and permanent is that which enables a student to forget altogether whether his fellow-student is Asiatic or European ; that is, when political theories and racial self-consciousness are obliterated by the common pursuit of knowledge merely for its own sake.

If I were asked to quote examples of those who help most to cement the friendship of East and West, I should begin my list, not with political reformers, but with those members of the Bengal Society who still carry on their “ Asiatic ” research work here—men like Beveridge, Grierson, Vincent Smith, Pargiter and Denison Ross. And among institutions, not those that seek artificially to create political tranquility—not even institutions like the League of Nations, but the Royal Asiatic Society.

As the representative of your venerable parent, you will realise, therefore, that I have many reasons personal as well as official, for renewing the Anglo-Japanese alliance and for joining His Excellency in inviting you to drink to the health of the Royal Asiatic Society.

Proceedings of the Medical Section, 1923.

Seven meetings were held during the year and all were well attended. The policy of throwing meetings of the Medical Section open to medical visitors has resulted in several new applicants coming forward for membership of the Society, but it is hoped that several regular "visitors" will realise that it is their duty to join the Society. All the papers presented or read have received publication, either in full or in précis, in the *Indian Medical Gazette* or in the *Indian Journal of Medical Research*.

FEBRUARY, 1923.

A meeting of the Medical Section of the Society was held on Wednesday, the 14th February, 1923, at 6-15 P.M.

PRESENT.

MAJOR R. KNOWLES, I.M.S., in the chair.

Members :

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|---------------------------------|---|
| Acton, Major H.W., I.M.S. | Megaw, Lt.-Col. J. W. D., M.B., I.M.S. |
| Bose, Dr. S. R. | Muir, Dr. E., M.D., F.R.C.S.E. |
| Chatterji, Dr. K.K., F.R.C.S.I. | Shanks, Capt. G., M.D., I.M.S. |
| Chopra, Major R. N., M.A., M.D. | Stewart, Major A. D., D.P.H., I.M.S. |
| De, Dr. J. C. | |
| Ganguli, Capt. P., M.B. | |

Visitors : 45.

The Minutes of the last meeting were confirmed and signed.

A paper was read by Lt.-Col. J. W. D. Megaw, I.M.S., on "The Epidemic Dropsy Problem."

The author set himself to answer certain questions:—

(1) Are beriberi and epidemic dropsy the same or different diseases? Here the conclusion came to was that, although each disease might present widely varying symptoms, yet there was not sufficient evidence to differentiate one from the other.

(2) Are human beriberi and experimental polyneuritis of birds identical? Here the conclusion was that they are not. The former is characterised by œdema, the latter not; the former shews cardiac hypertrophy, the latter cardiac atrophy. Avian polyneuritis may be a true avitaminosis, but—if —so

this does not strengthen the case for regarding human beriberi as an avitaminosis.

If so, then our views as to the causation of epidemic dropsy should undergo revision, and the trend of present day evidence was towards regarding the disease as due to rice intoxication.

Dr. S. Sundar Rao read a paper on "The Problems of Filarial Endemicity."

Lewis in Calcutta in 1872 was the first person to discover microfilariæ in the blood of man. To-day in connection with *F. bancrofti* there was no evidence for any other life-cycles than those in man and in the culicine mosquito. Three factors were essential to produce filarial endemicity:—(1) The worm must be present in man or be imported into the area. (2) The correct and efficient insect vectors must be present. (3) There must be suitable soil,—usually one low-lying and water-logged,—with suitable conditions of atmospheric temperature and humidity. The distribution in India was very clearly defined, and closely adjacent areas might shew heavy infection in one with none at all in the other. Much further work on the problem was required.

Both papers were freely discussed, and the meeting terminated at 8-15 P.M.

MARCH, 1923.

A meeting of the Medical Section of the Society was held on Wednesday, the 14th March 1923, at 6-15 P.M.

PRESENT.

LT.-COLONEL J. W. D. MEGAW, I.M.S., in the chair.

Members :

Bhattacharya, Dr. S., M.B.
Brahmachari, Rai Bahadur U. N.,
M.A., M.D., Ph.D., F.A.S.B.
Das, Dr. C. B.
Gourlay, Lt.-Col. C. A., D.S.O.,
I.M.S.

Knowles, Major R., I.M.S.
Shanks, Capt. G., M.D., I.M.S.
Stewart, Major A. D., D.P.H.,
I.M.S.

Visitors : 9.

The Minutes of the last meeting were confirmed and signed.

Capt. G. Shanks read a paper on "Agglutination Methods in Enteric Fevers occurring in Inoculated Persons."

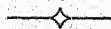
The author summed up his experience of this difficult subject when working under Professor Dreyer in the war hospitals in France. It proved absolutely essential to use the full

Dreyer technique, as all other methods might prove unreliable. With the Dreyer technique however, the agglutination due to enteric fever could be distinguished from that due to previous anti-enteric inoculation. Dealing with three groups,—typhoid fever in those inoculated against *B. typhosus* only, paratyphoid infections in those inoculated with the triple T A.B. vaccine, and with controls,—non-enteric fevers in inoculated persons,—the author shewed how, with enteric fever in the inoculated subject, there was a steady, regular and marked rise in agglutination titre, which enabled a certain diagnosis to be given by the test, even in those previously inoculated. A change of from 100 to 200 % in the titre of the serum was diagnostic.

Major A. D. Stewart, D.P.H., I.M.S., read a paper "On the Selection of a Disinfectant."

The author pointed out how confused were ideas on the subject. Under different circumstances, different reagents might be wanted; a mere insecticide, a deodorant, a bactericide which would kill the ordinary faecal bacteria, or—more rarely—a strong bactericide capable of killing bacterial spores. The criteria for an ideal disinfectant were next discussed, and those most commonly in use were discussed. Questions of the matter to be disinfected, when and how to apply the disinfectant were discussed. For steam disinfection the simpler apparatus,—such as the Serbian barrel—is the best for this country. Formaldehyde vapour is a powerful bactericide, but does not penetrate, and is not an insecticide. Sulphur dioxide is an efficient insecticide, but a poor germicide. Quicklime is one of the most easily procured and efficient of antiseptics in this country; for use with faeces, it should be used slaked with a little water and well stirred in, it is perhaps the cheapest antiseptic for this purpose, and always easily available in India.

The chlorine derivatives were valuable germicides, but tended in India to rapidly lose their stability. The newly-introduced electrolytic chlorine, however, maintained its available chlorine content remarkably well in tropical climates. Corrosive sublimate was too poisonous for general public health work. The coal-tar derivatives were much over-rated. Here not merely should bactericidal power be considered, emulsification was also most important, and especially emulsification in saline solutions. Preparations bought on the open market varied widely in this matter; some being nearly useless if used in urine or in sea water, as they failed to emulsify at all.



APRIL, 1923.

A meeting of the Medical Section of the Society was held at 6-15 P.M. on Wednesday, the 11th April, 1923.

PRESENT.

LT.-COLONEL J. W. D. MEGAW, I.M.S., in the chair.

Members :

Acton, Major H. W., I.M.S.

Bose, Dr. S. R.

Brahmachari, Rai Bahadur Dr.

U. N., M.A., M.D., Ph.D.,
F.A.S.B.

Campos, Dr. J. J.

Connor, Lt.-Colonel F. P., D.S.O.,
I.M.S.

Chopra, Major R. N. I.M.S.

Gourlay, Lt.-Colonel C. A., D.S.O.,
I.M.S.

Knowles, Major R., I.M.S.

Muir, Dr. E., M.D., F.R.C.S. E.

Visitors : 26.

The Minutes of the last meeting were confirmed and signed.

A paper was read by Major H. W. Acton, I.M.S., (with Dr. Ganapati Panja as joint-author) on "Leucoderma."

The authors pointed out how very common is this condition in India and how little understood. True leucoderma must be carefully distinguished from the pseudo-leucodermas due to leprosy, syphilis, etc. It affects all races and all ages,—the majority of cases seen at the skin diseases clinic at the Calcutta School of Tropical Medicine being under the age of ten years, and many being unmarried girls whose matrimonial prospects were endangered by the condition. Over 100 cases had been studied at Calcutta in a year.

The skin pigment, melanin, is produced by the melanoblasts of the skin by the action of a ferment,—tyrosinase,—on certain amino-acids of the aromatic series. The supply of the latter comes from the gut, and is to some extent under the control of the ductless glands and of the sympathetic nervous system.

In true leucoderma the melanoblasts shew no defective action; whilst there is no distribution of the "white skin" along nerve areas. Hence certain possibilities arise. The melanoblasts may secrete less tyrosinase,—and this appears to explain the white skin of the Caucasian races; also in the pseudo-leucoderma of syphilis and of leprosy the secretory activity of the melanoblasts appears to be depressed. Or the supply of the right amino-acids may be defective; and this appears to be the true explanation of leucoderma in Indians.

Clinically the disease always begins with a "herald spot", and several types may be distinguished,—the "melung" type of Ziemann, where the patches are symmetrically distributed

on the extremities; the *dhoti* type, with lesions on the iliac crests; the muco-cutaneous type, with lesions starting at the junction of skin and mucous membranes; and the diffuse type, where the whole body may become white, leaving but an occasional patch of pigmentation, with pigment in the iris and the hair.

Treatment is at present purely experimental, but the existence of possible intestinal infections should be looked into in each case, since this may interfere with the supply of the necessary amino-acids. At present *bouchi*,—an indigenous drug with some reputation in the condition,—was being tried, both locally and orally.

The paper was accompanied by a very complete set of colour plates of the disease, and led to an interesting discussion.

Rai Dr. U. N. Brahmachari Bahadur, M.A., M.D., F.A.S.B., then read a paper on "The Excretion of Antimony."

He laid emphasis on the entirely different rates of urinary excretion of trivalent and of pentavalent salts of antimony after their intravenous injection. With trivalent salts the excretion was slow, but with the pentavalent salts it was very rapid during the first 24 hours after injection, and thereafter the curve followed that for the trivalent salts. Hence in the treatment of kala azar by antimony salts intravenously, pentavalent salts might be therapeutically much more effective and much less toxic than trivalent ones,—and his experimental work with his newly-introduced urea stibamine, a pentavalent salt, gave promise of very good results.

The meeting terminated at 8.5 P.M.



MAY, 1923.

A meeting of the Medical Section of the Society was held at 6.15 P.M. on Wednesday, the 9th May, 1923.

PRESENT.

LT.-COLONEL C. A. GOURLAY, D.S.O., I.M.S., in the chair.

Members :

Aeton, Major H. W., I.M.S.

Connor, Lt.-Colonel F. P., D.S.O.,
I.M.S.

Bose, Dr. S. R.

Chatterji, Dr. K. K., F.R.C.S.I.

Knowles, Major R., I.M.S.

Chatterji, Dr. N. C.

Muir, Dr. E., M.D., F.R.C.S.E.

Visitors : 24.

The Minutes of the last meeting were confirmed and signed.

Major H. W. Acton, I.M.S., read a paper on "The Causation of Asthma and its Treatment."

The author defined the term "asthma" as not constituting a disease, but a symptom-complex, due to many different causes. Of various views put forward, the explanation that asthma was an anaphylactoid phenomenon merely confused the issue, owing to our ignorance of the causes of anaphylaxis; whilst vaccine therapy was frankly experimental.

The true causes of asthma might be divided into:—

(a) *Extrinsic*.—Here emanations from different animals and various pollens might be the cause. Woodhouse has shewn that the toxin of cat asthma is soluble in water and alcohol and is therefore not a proteid. Probably such emanations are of the nature of volatile amino-acids.

(b) *Intrinsic*.—Here we had asthma due:—to respiratory infections, such cases coming on late in life and being benefited by vaccine therapy; cases of intestinal origin, usually coming on in early life or being hereditary, and shewing susceptibility to certain foods; cases due to intestinal infections and derangements, where local lesions in the gut permitted the absorption into the system of pressor bases which gave rise to bronchial spasm; and—most rarely of all—local septic foci in the body.

Against such invasion there was an elaborate defensive mechanism, consisting of a marked eosinophilia, a hydrogen ion concentration in the organs which would not permit the pressor bases to act, and the activity of the endocrine system. Finally the tonus of the nerves concerned was important and explained individual susceptibility to such toxins; so that asthmatic patients could be classified into vagotonics, patients with sympathetic predominance, and a mixed group of hyper-excitability of both systems.

The treatment of any cases of asthma, therefore, depended upon its exact causation. The sputum should be examined for Charcot Leyden crystals and for eosinophile leucocytes; the blood for eosinophilia; the faeces for intestinal infections. The group due to extrinsic causes could be treated by cutaneous tests and immunization with the different extracts from animals and pollens. The defensive mechanism must be studied, and often organotherapy is indicated. The treatment of a case does not mean the labelling of it "asthma" and the prescription of a cough mixture; each case must have individual study.

Dr. J. B. McVail then read a paper by himself and Major R. N. Chopra, I.M.S., on "The Therapeutics and Pharmacology of Carbon Tetrachloride."

Having detailed the history of the introduction of carbon tetrachloride as an anthelmintic with special reference to hook-

worm infections, the authors first considered the impurities present in ordinary commercial samples. A pure product having been prepared for them by Major Boyd, I.M.S., it was subjected to (a) experiments on animals to test toxicity, and (b) clinical administration to over 230 cases of ankylostomiasis in hospital. Experimentally it was found to kill both ankylostomes and Necators at dilutions of 1 in 3,000 and stronger, but not in weaker dilutions. It caused depression of peristalsis, but a reflex rise of blood pressure by irritation of mucous membranes. On inhalation it has a markedly irritant effect upon the bronchi, and this may lead to collapse; the drug should never be given to struggling children for fear the gelatine capsules containing it may break in the trachea and cause such reflex collapse. Dogs to whom large doses were administered shewed little if any degeneration of the liver. Tested clinically in hospital use they claimed that carbon tetrachloride is the most efficient anthelmintic known against hookworm infection; that given in medicinal doses and followed by an after-purgative of saline it is safe; that the chief contra-indications are impaired hepatic efficiency, whether due to alcoholism or not, and possibly heavy *Ascaris* infection in children; but that therapeutic doses do not appear to damage the liver, even in such subjects as are weakened and debilitated by concomitant kala azar.

SEPTEMBER, 1923.

A meeting of the Medical Section of the Society was held at the Calcutta School of Tropical Medicine (owing to the Society's premises being under repairs) at 5 P.M. on Wednesday, the 12th September, 1923.

PRESENT.

LT -COLONEL J. W. D. MEGAW, I.M.S., in the chair.

Members :

Acton, Major H. W., I.M.S.
Barnardo, Lt. Colonel F. A. F.,
C.I.E., I.M.S.
Bhattacharji, Dr. S., M.B.
Brahmachari, Rai Bahadur Dr.
U. N., M.A., M.D., Ph.D.,
F.A.S.B.
Chopra, Major R. N., M.A., M.D.,
I.M.S.

Gourlay, Lt.-Colonel C. A., D.S.O.,
I.M.S.
Knowles, Major R., I.M.S.
Muir, Dr. E., M.D., F.R.C.S.E.
Mukerji, Dr. J. N.
Shanks, Capt. G., M.D., I.M.S.
Stewart, Major A. D., D.P.H.,
I.M.S.

Visitors : 65.

The minutes of the last meeting were confirmed and signed.

Major H. W. Acton, I.M.S., read a paper on "The Treatment of Bacillary Dysentery."

The author pointed out that bacillary was some ten to sixteen times as common as amœbic dysentery in tropical countries; yet the former was almost universally treated by emetine,—a drug which could only do harm in the bacillary type of dysentery. The proper treatment of bacillary dysentery consisted in knowing what to do and when to do it.

The first essential was accurate diagnosis: (a) clinically, from a consideration of the temperature chart and examination of the stools macroscopically; (b) by microscopic examination of the stools; and, lastly, if the dysentery were bacillary and not amœbic, by typing the dysenteric organism present,—where mannite was the chief sugar to employ in differentiating the Shiga from the Flexner group of organisms. Both Shiga and Flexner bacilli produce endotoxins, but the former also produces a potent exo-toxin, which is responsible for the severe and sometimes fatal collapse associated with this type of infection. This toxin had been isolated; it was produced especially when the Shiga bacillus grew in a fluid substrate rich in amines, and whether a given Shiga bacillus infection might prove merely a mild diarrhœa, or a severe and fatal toxæmia, might depend upon the conditions in the substrate, *i.e.*, upon the proteose content in the gut.

The causative bacilli live on the surface of the colon mucosa,—in more severe cases in the solitary follicles, and only rarely do they penetrate into the blood stream and cause a septicæmia. Not infrequently,—inasmuch as some 15 per cent. of humanity in the tropics harbour *E. histolytica*,—this protozoon would be found in typical bacillary dysentery stools, a source of confusion to the student.

In treatment the first essential was rest. One should no more dream of treating a severely ulcerated colon by permitting the patient to walk about, than of treating a severely ulcerated leg by permitting exercise. Rest in bed for ten days was the first step. Secondly, diet, where everything depended upon the invading micro-organism; if a Shiga infection, proteids should be eliminated and a carbohydrate diet given; in a Flexner infection proteids could be given, and such patients not infrequently shew intolerance to carbohydrates. Thirdly, specific treatment; *i.e.*, the free use of anti-dysenteric serum in doses of from 40 to 100 c.c. intravenously during the first 48 hours of the attack, where it often acted like a charm; after the first 48 hours it was useless.

In drug treatment the first step was to clear the bowels if the case was seen early, an initial dose of castor oil with tincture of opium being succeeded by regular doses of saline aperient mixture. As soon as pain and tenesmus had disappeared, the aperient sulphate mixture could be reduced to one dose every

four hours, and when the patient was convalescent liquid paraffin should be the aperient used. As convalescence set in sedatives, such as bismuth in large doses,—*e g.*, one drachm of the carbonate every six hours and, finally *isofgul* or *bael sherbet* might be resorted to.

Acute bacillary dysentery should never be allowed to lapse into chronic bacillary dysentery; yet such cases were very frequently seen—especially in connection with Flexner infections. Here vaccine therapy, the administration of iodides, the examination of the intestine after a bismuth meal to ascertain the amount of mechanical obstruction and visceroptosis present and its treatment, and not infrequently the administration of polyglandular extracts for the marked endocrine deficiency which was so often associated with such states, might be indicated. Such cases were the despair of the general practitioner in the tropics—chiefly because he would not take the trouble to investigate their real aetiology,—and he usually tried to make such patients over to someone else.

A long discussion followed Major Acton's paper, in which Colonel Barnardo gave his views on and experience of the disease, dwelling especially upon the difficulties of the treatment of the disease in young children.

Rai Dr. U. N. Brahmachari Bahadur, M.A., M.D., Ph.D., F.A.S.B., then read a paper on "The treatment of cases of Kala Azar resistant to the Antimonyl tartrates with Urea Stibamine; and the Therapeutic value of Stibamine in Kala Azar."

The author pointed out that urea stibamine was the antimony analogue of soamin. He defined resistant cases as those which were not cured after the intravenous injection of a total course of 2 grammes of either sodium or potassium antimony tartrate. In such cases,—full details of several of which were given,—he had found in urea stibamine an absolute cure, the patients having been under observation and having remained well for some six or more months after the cessation of treatment. Cases which had failed to respond to total courses of from 2 to 6 grammes of tartar emetic, had yielded to a short course of 9 or 10 injections of urea stibamine.

Dr. Brahmachari's paper was followed by an interesting discussion, in which Dr. L. E. Napier took part. Several speakers hoped that the drug would soon become available on the market; others asked as to its constancy on keeping and chemical composition. Dr. Brahmachari replied, and the meeting terminated at 7.45 p.m., after Major Acton had given an exhibit of specimens in connection with his work on epidemic dropsy, and the exhibition of cinema films of medical interest on protozoal and insect life-cycles.

OCTOBER, 1923.

A meeting of the Medical Section was held at the Calcutta School of Tropical Medicine at 5 P.M. on Wednesday, the 10th October, 1923.

PRESENT.

LT.-COLONEL J. W. D. MEGAW, I.M.S., in the chair.

Members :

Acton, Major H. W., I.M.S.

Bal, Dr. S. N.

Bose, Dr. S. R.

Gourlay, Lt.-Colonel C. A., D.S.O.,
I.M.S.

Harnett, Major W. L., I.M.S.

Knowles, Major R., I.M.S.

Visitors : 22.

The minutes of the last meeting were confirmed and signed.

Lt.-Colonel C. A. Gourlay, D.S.O., I.M.S., read a paper
“ On Experiences of Venereal Diseases among Indian Women.”

The author first recounted the history of Indian legislation on this subject and then detailed the working and organisation of the voluntary venereal diseases' hospital for women at Alipore, with its staff of one visiting physician, two honorary physicians, two resident physicians, and nurses and establishment. In dealing with such patients in India one was faced by continual difficulties, the first being that patients did not resort to hospital until the disease was well established, the second that they would not stay in hospital until cure was assured, and almost invariably left as soon as symptoms were relieved. One of the most interesting results which had followed careful microscopical and serological investigation of these cases was the rarity of a simple infection; thus of 73 cases of bubo admitted in 1922, 52 had soft sores, 18 had syphilis and 3 had gonorrhœa as complications; the minority of cases indeed were of single infections. In the treatment of bubo surgical measures were usually necessary; for gonorrhœa thorough douching with biniodide of mercury in spirit, with applications of 5 per cent. picric acid in glycerine to the infected cervix was the routine; in syphilis various different plans of treatment had been resorted to. At first, from 1917, the standard army treatment (modified) was adopted;—three consecutive weekly injections of novarsenobillon, accompanied by intramuscular injections of mercury. Later Harrison's standard course of eight injections, with two intervals of rest, and one weekly injection of mercurial cream was given. This gave excellent results, but cases of mercurial poisoning and of exfoliative dermatitis from the novarsenobillon resulted. Harri-

son's treatment is one for adult British soldiers, weighing some 10 to 12 stone each; and an examination of the Alipore patients shewed that their average weight was only 6 stone.

Finally, therefore, a course of treatment had been worked out, which (a) attempted to achieve the maximal curative effect during the one month which the patient was willing to spend in hospital; and was (b) non-toxic. This consisted in four weekly injections of stabilarsan,—which the author preferred to novarsenobillon,—accompanied by daily mercurial injections, the advantage of the latter being that the patients held a daily inunction drill, that it could be stopped the moment that symptoms of mercurial poisoning appeared, and that the patient—on leaving hospital—was given a further one month's supply, which it was hoped she would use.

This scheme could not be claimed to be ideal; on the other hand it appeared to be the most practicable one, under the existing conditions. He quite realised the large proportion of relapse cases which they admitted, but saw no way of improving results with patients who refused to remain in hospital until complete cure was ensured.

A discussion followed Colonel Gourlay's paper in which Dr. K. S. Roy, Honorary Physician to the Alipore Hospital, gave an account of the Sachs-Georgi and Wassermann comparative results in series of patients, and Major Harnett commented on the question of weight. When in charge of a large Indian war hospital at Constantinople he had found that Harrison's standard army course was too severe for Indian troops, had taken their weights, and had adopted the smaller navy course of treatment with better results. Major Knowles drew attention to the positive finding of *S. pallida* under the dark ground microscope as being easier and attended with more certain results than the Wassermann reaction, and Major Acton to the universal misuse of the Wassermann test for all and every type of skin disease.

Major H. W. Acton, I.M.S., then read a paper on "Some Rare Diseases of the Skin in the Tropics."

These he divided into (a) those of congenital origin; and (b) acquired. Of the former von Recklinghausen's disease was not very uncommon in India,—the symptoms being multiple tumours under the skin—molluscum fibrosum; tumours on the nerve trunks; and pigmented patches. The existence of any two of these established the diagnosis, and striking photographs were shewn of a woman with elastic skin, whose son had neuro-fibromata. Adenoma sebaceum was a symmetrical affection of the face, usually involving the naso-labial sulci. Tricho-epithelioma affected the face, sometimes the arms, and the skin between the scapulae. Xeroderma pigmentosum

commenced with moles and freckles, which developed into either endotheliomata or melanotic sarcoma,—the onset of bleeding being the herald sign of malignant change. Epi-dermolysis bullosa was an extraordinary condition in which the natural elasticity of the skin was lost, so that wherever pressure occurred, *e.g.*, around the collar band, the back of the head, etc., innumerable bullae appeared.

Of the acquired group of diseases, mycosis fungoides is a chronic malignant disease, commencing as an eczema or ex-foliatitive dermatitis, and followed by the appearance of reddish tubercular or nodulated tumours, or by flat infiltration. Scleroderma is a chronic disease characterised by a more or less diffuse and indurated hide-like condition of the skin. It may follow the distribution of nerve trunks, or affect local areas such as the hands and the back of the neck,—*coll en curiasse*. Some of these cases had proved amenable to treatment with thyroid extract orally.

Major Acton's paper was accompanied by a striking set of colour plates and lantern slides of the conditions described. An exhibition of cinema films of medical interest followed, and the meeting terminated at 7-20 P.M.



DECEMBER, 1923.

A meeting of the Medical Section of the Society was held at 6-15 P.M., at the Society's Rooms, on Wednesday, the 12th December, 1923.

PRESENT.

LT.-COLONEL J. W. D. MEGAW, I.M.S., in the chair.

Members:

Acton, Major H. W., I.M.S.

Basu, Dr. S.

Brahmachari, Rai Bahadur Dr.

U. N., M.A., M.D., Ph.D.,
F.A.S.B.

Connor, Lt. Colonel F. P., D.S.O.,
I.M.S.

Fry, Lt.-Colonel A. B., D.S.O.,
I.M.S.

Knowles, Major R., I.M.S.

Stewart, Major A. D., D.P.H.,
I.M.S.

Visitors: 22.

The minutes of the last meeting were confirmed and signed.

Lt.-Colonel F. P. Connor, D.S.O., I.M.S., read a paper on "Some Surgical Points of Interest."

The author dealt first with a case of exceptionally large calculus impacted in the fossa navicularis urethrae. The

patient was a European male aged 40 years, and the calculus,—the size of a pigeon's egg,—had been impacted in this site for seven years. Skiagrams of the condition were shewn.

Secondly, with the use of iodine solutions intravenously in septicaemia and other infections. Here the author had first commenced to use such injections for the treatment of plague in 1910 with good results. Since that date he had by degrees come to adopt the method widely in surgical cases of different types,—in generalised sepsis, carbuncles, boils, and septicaemia. His results were very encouraging, and he had been further encouraged in pursuing this line of treatment by the recent appearance in the *Indian Medical Gazette* of an article by Lt.-Colonel W. W. Jeudwine, I.M.S., in which he recorded the result of the use of the method in some hundreds of cases, including cases of "septic lung" and early phthisis. The suggestion was at least worth following up.

Thirdly, with regard to the causation of the common type of hydrocele met with in Bengal. This was one of the commonest type of cases encountered in surgical practice in Bengal, yet we were almost ignorant of its true ætiology. Some were perhaps due to filariasis, yet our knowledge with regard to this disease has scarcely advanced one iota since the days when Sir Patrick Manson did so much work upon it. A second type was associated with definite changes in the epididymis,—the testis remaining normal. Bacteriological examination of the fluid in such cases had yielded negative results. Yet some were probably of streptococcal origin, and in this connection the curious acute streptococcal funiculitis of the cord should not be forgotten.

Colonel Connor's paper was followed by an interesting discussion in which Major Acton drew attention to the influence of the thyroid gland on septic processes, and Dr. Brahmachari drew attention to the use of iodine intravenously with benefit in influenzal septicaemia, whilst other speakers commented on its complete failure in malaria and kala azar. A discussion which lasted for some time prevented the reading of Colonel Megaw's proposed paper on "The Typhus Group of Fevers," which was adjourned until the next meeting, and the meeting terminated at 7-35 P.M.

On a review of the year, the writer has to confess to feelings of both satisfaction and of disappointment. The Medical Section of the Society ought not to be an entirely separate and independent medical society; it should be far more in touch with the natural history sections and with the general activities of the Society. Secondly, the staff of the Calcutta School of Tropical Medicine has no desire to monopolise the papers at meetings of the Medical Section; yet, if the clinical and practising medical and surgical members of the Society will not come

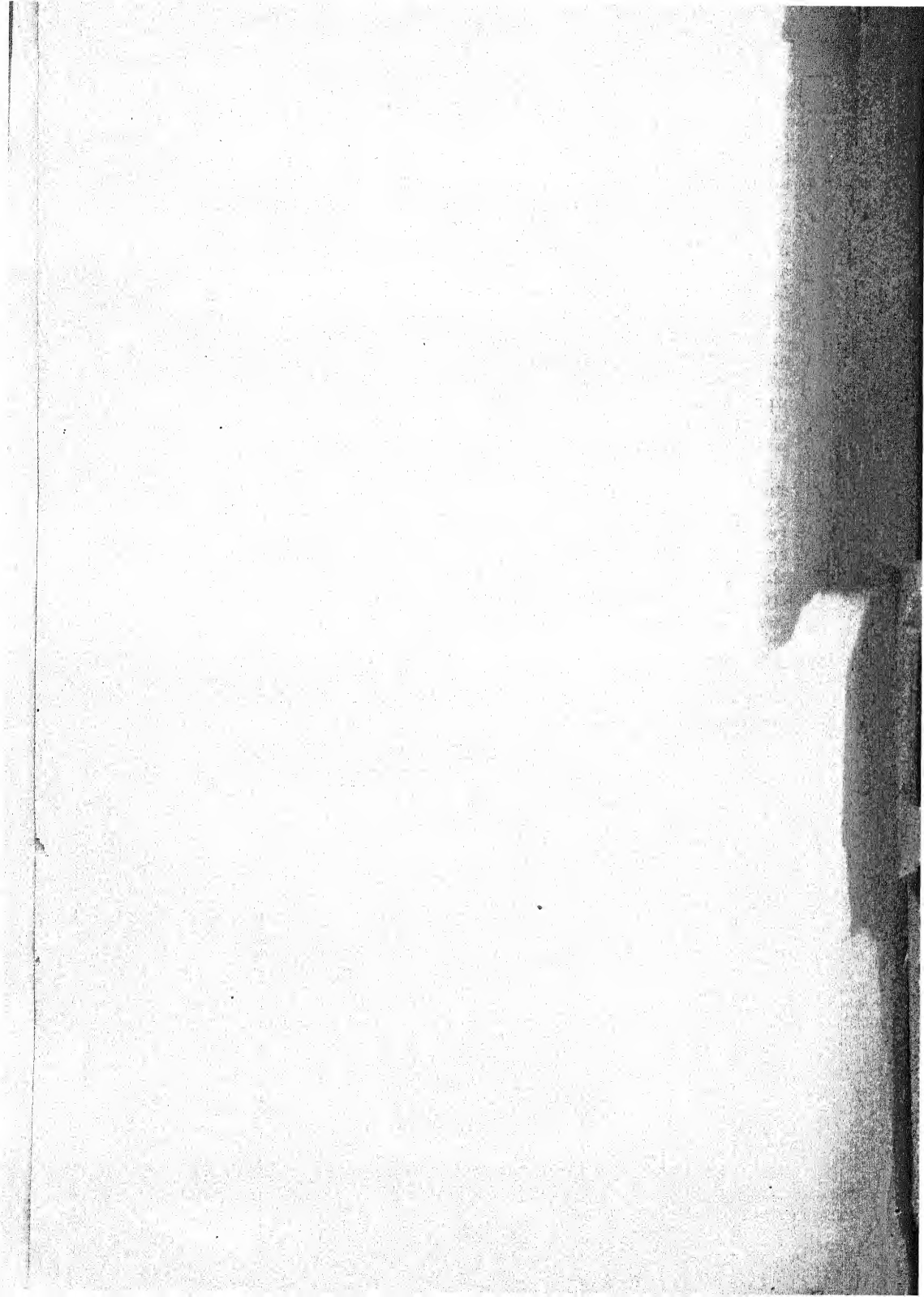
forward with papers and take part in discussions, there seems to be no alternative. One medical member of the Society has resigned during the year, on the plea that the Calcutta School of Tropical Medicine could better run a monthly medical meeting of its own, which it would be more convenient to attend. Such a separatist policy is to be deplored. The Medical Section of the Society should afford a common meeting ground for all medical members, together with those interested in those branches of the natural sciences which have an important bearing upon medicine. Louis Pasteur never qualified as a medical student; yet he exercised a more profound influence upon both medicine and surgery than did any medical practitioner of his era. The Medical Section is too much out of touch with the other and more general activities of the Society.

Lastly, several distinguished and habitual "visitors" to meetings of the Medical Section should become members of the Society. The Medical Section should afford a common meeting ground for the representatives of medical research, the staffs of the great Calcutta hospitals, both Indian and European, and the representatives of the ancillary natural sciences upon which tropical medicine is so much dependent for any further advances. It is at present too much of an enclave.

The writer desires, in conclusion, to express his thanks to Mr J. van Manen, General Secretary of the Society, for the very considerable trouble which he has taken with regard to meetings of the Medical Section.

R. KNOWLES, MAJOR, I.M.S.

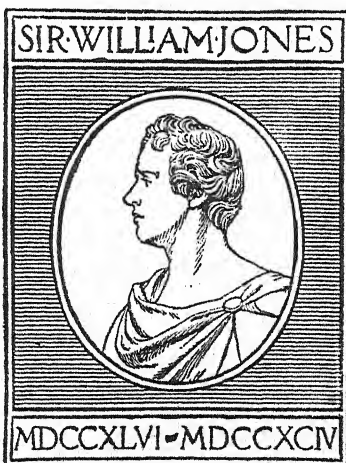
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called *Atrāf as-Ṣaḥīḥain*. Hāji Khalifa, vol. I, p. 343, says that in respect of arrangement and correctness the work of the latter scholar was the better. Two copies of this latter work, one in 4 volumes and the other in 3 volumes, are mentioned in the Cairo Catalogue, vol. I, p. 268.

It begins as follows:—

الحمد لله الذي علمنا ما لم نكن نعلم و كان فضل الله علينا كثيرا الخ *

Both the copies are fairly old ones. The one is dated A.H. 707 and the other A.H. 639.

Hāji Khalifa, vol. I, p. 343, mentions two other *Atrāf* for al-Bukhārī and Muslim which are also named *Atrāf as-Ṣaḥīḥain*. One is by al-Hāfiẓ Abū Nu'aim¹ Ahmad bin 'Abdallāh al-Isfahānī, died, A.H. 430, A.D. 1038, and the other by al-Hāfiẓ Ahmad bin 'Alī bin Hajar² al-'Askalānī, died, A.H. 852, A. D. 1449.

After the publication of Khalaf's work, which deals only with the *Ṣaḥīḥain*,³ there arose the necessity of writing *Atrāf* for other works on Tradition; so al-Hāfiẓ Abū'l Fadl Muḥammad⁴ bin Tāhir bin 'Alī al-Makdisī al-Kaisarānī, died, A.H. 507, A.D. 1113, wrote the *Atrāf* for *al-Kutub as-Sitta*,⁵ excluding from

¹ Abū Nu'aim Ahmad bin Abdallāh al-Isfahānī was born at Isfahān in A.H. 336, A.D. 948. He proceeded to Baghdād in A.H. 356, A.D. 966, and subsequently visited Baṣra, Kūfa and Naishāpūr, collecting everywhere Traditions from the best authorities. He was regarded by general consent as the greatest Traditionist of his age. He died in A.H. 430, A.D. 1038. See Subkī, *Ṭabaqāt al-Kubrā*, vol. III, p. 7; and Ibn Khallikān, *De Slane's Translation*, vol. I, p. 74.

² Ahmad bin 'Alī bin Hajar al-'Askalānī was born at Ascalon in A.H. 773, A.D. 1372, and travelled in different Islamic countries to study the Traditions. He is the author of many useful works, and died in A.H. 852, A.D. 1449. See *Bustān al-Muḥaddithīn*, p. 113, and Brockelmann, *Gesch. der Arab. Litter.*, vol. II, p. 67.

³ *Ṣaḥīḥain* is the name of two collections of Traditions by (1) al-Bukhārī, and (2) Muslim. They are held in particularly high esteem and are recognised as undisputed authorities. The work of al-Bukhārī, al-Jāmi' as-Ṣaḥīḥ, is considered by many scholars as ranking in authority next to the *Kur'ān*.

⁴ Abū'l Fadl Muḥammad bin Tāhir bin 'Alī al-Makdisī was born in 448, A.D. 1058 in Jerusalem. He came to Baghdād in A.H. 467, A.D. 1074, and afterwards returned to his native land. From there he went on a pilgrimage to Mecca, and thence to Baghdād where he died in A.H. 507, A.D. 1113. See my Catalogue of the Arabic MSS, in the Būhār Library (Imperial Library, Calcutta), p. 274.

⁵ *al-Kutub as-Sitta* is the name of the six famous collections of Traditions according to the Sunnī school. They are by (1) al-Bukhārī (died, A.H. 256, A.D. 870); (2) Muslim (died, A.H. 261, A.D. 873); (3) Abū Dā'ūd (died, A.H. 275, A.D. 888); (4) at-Tirmidhī (died, A.H. 279, A.D. 892); (5) an-Nasā'ī (died, A.H. 303, A.D. 915); (6) and Ibn Māja (died, A.H. 273, A.D. 886), or Mālik bin Anas (died, A.H. 179, A.D. 795). There is a difference of opinion with regard to the sixth book. The Moslem Traditionists of Africa consider that the work of Mālik bin Anas (*al-Muwattā*) should be reckoned as the sixth book, while others are of opinion that the book of Ibn Māja (*as-Sunan*) should be reckoned as such.

his book the Traditions of al-Muwatta by Mālik bin Anas, died, A.H. 179, A.D. 795. This work of al-Maḥḍisī did not meet with the approval of the learned scholars of the time and consequently at a later period al-Hāfiẓ Muḥammad bin 'Alī bin al-Ḥasan al-Ḥusainī ad-Dimashkī¹ (died, A.H. 765, A.D. 1363), re-arranged and abridged Maḥḍisī's book: see Ḥājī Khalīfa, vol. I., p. 344.

As the work of al-Maḥḍisī did not command undisputed authority, al-Hāfiẓ Ibn 'Asākir² (died, A.H. 571, A.D. 1176), wrote the *Atrāf* for four books of *aṣ-Ṣiḥāḥ as-Sitta*, besides for the two *Ṣaḥīḥain* and *al-Muwatta*. He named his work al-Ishrāf 'Alā Ma'rifat al-Atrāf. Prof. Brockelmann, in that indispensable work on the Arabic Literature, the *Geschichte der Arab. Litter.*, vol. I, p. 331, mentions two copies of this book; one in Cairo and the other in Constantinople. The Cairo copy begins as follows:—

الحمد لله الهادي الى الرشاد الخ *

It is in three volumes and is dated, A.H. 634: see also the Cairo Catalogue, vol. I, p. 268.

Following the principles of Ibn 'Asākir another scholar of a later period, 'Umar³ bin 'Alī bin al-Mulāḥḥin al-Anṣārī (died, A.H. 804, A.D. 1401), wrote also on this subject and named his book al-Ishrāf 'Alā Atrāf al-Kutub. Al-Hāfiẓ as-Suyūṭī⁴ (died, A.H. 911, A.D. 1505), improved this book and called it Itrāf al-Ashrāf bi'l Ishrāf 'alā'l Atrāf: see Ḥājī Khalīfa, vol. I, p. 319.

Ibn 'Asākir's work remained the standard work on this science for some time and then al-Hāfiẓ al-Mizzī⁵ (died, A.H.

¹ Muḥammad bin 'Alī bin al-Ḥasan al-Ḥusainī ad-Dimashkī was born at Damascus in A.H. 715, A.D. 1315. He was a teacher of the Traditions there and died in A.H. 765, A.D. 1363. See Brockelmann, vol. II, p. 48.

² Ibn 'Asākir, whose full name was Abū'l Kāsim 'Alī bin al-Ḥasan bin Hibatallāh, was born at Damascus in A.H. 499, A.D. 1105. He studied the Traditions at the Nizāmiya College at Baghdād and became a Professor at the Nūriya Madrasa at Damascus. He died in A.H. 571, A.D. 1176. See Brockelmann, vol. I, p. 331.

³ 'Umar bin 'Alī bin al-Mulāḥḥin al-Anṣārī was born at Cairo in A.H. 723, A.D. 1323. He was a jurist of the Shāfi'i school and is the author of several works. He died in A.H. 804, A.D. 1401. See Ḥusan al-Muḥāḍara, *Litho.* edition, Cairo, 1860, p. 201 and Brockelmann, vol. II, p. 92.

⁴ As Suyūṭī, whose full name was Abū'l Fadl Jalāl ad-Dīn 'Abd ar-Rahmān bin Abī Bakr bin Muḥammad as-Suyūṭī, was born in A.H. 849, A.D. 1445. He went on the pilgrimage to Mecca in A.H. 869, A.D. 1464. On his return he was appointed Professor of Jurisprudence at the Shaiḫūniya Madrasa at Cairo. He died in A.H. 911, A.D. 1505. See my Catalogue of the Arabic MSS. in the Būhār Library (Imperial Library, Calcutta), p. 12.

⁵ Al-Mizzī, whose name was Abū'l Hajjāj Yūsuf bin 'Abd ar-Rahmān bin Yūsuf al-Mizzī was born in A.H. 654, A.D. 1256. He was the greatest Traditionist after Ibn al-'Asākir and died in A.H. 742, A.D. 1341. See adh-Dhahabī, *Tadhkirat al-Huffāz*, vol. III, p. 290 and as-Subkī, *Ṭabaqāt al-Kubrā*, vol. VI, p. 251.

742, A.D. 1341), wrote a comprehensive work on this subject, and included in his work the *Atrāf* for *al-Kutub as-Sitta*; *Kitāb al-Marāsīl* by Abū Dā'ūd; *Kitāb ash-Shamā'il* by at-Tirmidhi; and *Kitāb 'Aml al-Yaum wa'l Laila* by an-Nasā'ī. This work has remained authoritative up till now. It is called *Tuhfat al-Ashraf bi Ma'rifat al-Atrāf*. Prof. Brockelmann, in his *Geschichte der Arab. Litter.*, vol. II, p. 64, mentions two copies of this book, one incomplete copy in the Berlin Catalogue, Nos. 1374, and 1375 and the other in the Algiers Catalogue, Nos. 499 and 500. The Bankipur Library has a copy of this work in 4 vols: see Maulavi 'Abdul Hamid, *Cat. of Arabic and Persian MSS. at Bankipur Library*, vol. V., p. 140. The Asiatic Society of Bengal (Government First Collection, Nos. 149 and 150) also possesses one complete and fine copy of this book which is in two large volumes. The whole preface of the book and the first Tradition from this copy in the Society's collection is quoted below.

Preface.

الحمد لله رب العالمين واشهد ان لا اله الا الله وحده لا شريك له آله
الاولين والآخرين واشهد ان محمدا عبده ورسوله امام المتقين وخاتم النبيين
وخيرته من خلقه اجمعين صلى الله عليه وعلى آله وصحبه الطيبين الطاهرين
وعلى اخوانه من النبيين والمرسلين والتابعين لهم باحسان الى يوم الدين
وسائر عبادة الصالحين من اهل السموات والارضين اما بعد فاني قد عرضت
على ان اجمع في هذا الكتاب ان شاء الله تعالى اطراف الكتب الستة التي في
عدة اهل الاسلام وعليها مدار غاية الاحكام وهي صحيح محمد بن اسمعيل
البخاري وصحيح مسلم بن الحجاج النيسابوري وسنن ابي داود السجستاني
وجامع ابي عيسى الترمذي وسنن ابي عبد الرحمن النسائي وسنن ابي عبد
الله بن ماجة القرويني وما يجري مجراها من مقدمة كتاب مسلم وكتاب
المراسل لأبي داود وكتاب العلل للترمذي وهو الذي في آخر كتاب الجامع له
وكتاب الشمائل له وكتاب عمل اليوم والليلة للنسائي معتمدا في عامة ذلك
على كتاب ابي مسعود الدمشقي وكتاب خلف الواسطي في احاديث الصحيحين
وعلى كتاب ابي القسم ابن عساكر في كتاب السنن وما تقدم ذكره معها ورتبته
على نحو ترتيب كتاب ابي القسم فانه احسن الكل ترتيبا واصبت الى ذلك بعض
ما وقع لي من الزيادات التي اغفلوها واصلحت ما عثرت عليه في ذلك من وهم

او غلط و سميت به تحفة الاشراف بمعرفة الاطراف طالباً من الله تعالى التوفيق
و المعونة على اتمامه راجياً من كرمه و احسانه ان ينفعني بذلك و من كتبه
او قرأه او نظريته و ان يجعله خالصاً و الى مرضاته مقرباً و من سخطه مبعداً
فانه لا حول ولا قوة الا به وهو حسبنا و نعم الوكيل *

فصل في شرح الوقوم المذكورة في هذا الكتاب علامة ما اتفق عليه الجماعة
الستة ع و علامة ما اخرج البخاري خ و علامة ما استشهد به تعليقا د
و علامة ما اخرج مسلم م و علامة ما اخرج ابوداود د و علامة ما اخرج
الترمذي في الجامع ت و علامة ما اخرج في الشمائل ش و علامة ما اخرج
النسائي في السنن س و علامة ما اخرج في كتاب عمل يوم ليلة ع و علامة
ما اخرج ابن ماجه القزويني ق و ما في اوله ز من الكلام على الاحاديث
فهو ما زده و ما قبله ك فهو ما استدركته على الحافظ ابي القسم بن عساکر
رحمة الله عليهم اجمعين و كان الشروع فيه يوم عاشورا سنة ست و تسعين
و ستمائة و ختم في الثالث من ربيع الآخر سنة اثنيتين و عشرين و سبعمائة *

The First Tradition.

حرف الالف

[من مسند ابيض بن حمال الحميري المازني

عن النبي صلى الله عليه وسلم]

[حديث د ت ق انه وفد الى النبي صلى الله عليه وسلم فاستقطعه
الملك الذي بهارب الحديث د في الخراج عن قتيبة بن سعيد و محمد بن
المثوكل العسقلاني كلاهما عن محمد بن يحيى بن قيس المازني عن ابيه عن ثمامة
ابن شراحيل عن سمون بن قيس عن شمير بن عبد المدان عن ابيض بن حمال
به ت في الاحكام عن قتيبة و محمد بن يحيى بن ابي عمر كلاهما عن محمد
ابن يحيى بن قيس باسنادة و قال غريب ق في الاحكام عن محمد بن يحيى بن ابي
عمر عن فرخ بن سعيد بن علقمة بن سعيد بن ابيض بن حمال عن عمه ثابت
ابن سعيد عن ابيه سعيد عن ابيه ابيض نكوة *

The preface indicates that al-Mizzī took twenty-six years to write this book. It was and is still widely consulted as an authority on the subject. But as it is a voluminous work, two later scholars have tried to abridge it. One was al-Ḥāfiẓ adh-Dhahabī¹ (died, A.H. 748, A.D. 1348); and the other al-Ḥāfiẓ Muḥammad² bin 'Alī bin al-Ḥasan al-Husainī ad-Dimashqī (died, A.H. 765, A.D. 1363)—see Ḥājī Khalīfa, vol. I, p. 344. Ibn Ḥajar³ al-'Asqalānī, (died, A.H. 852, A.D. 1449), wrote comments and various useful notes on this work of al-Mizzī, and also collected those Traditions which al-Mizzī had omitted in his book. This commentary is entitled an-Nukat az-Zīrāf 'Ala'l Atrāf. A copy of this book is in the Bankipur Library (see Maulavī 'Abdul Ḥamid, Cat., vol. V, p. 143). It begins as follows:—

العمد للذي لا تنقص احكامه ولا تنفذ ولو كان البحر مدادا لكلمات
كلامه الخ *

The cataloguer of the Bankipur Library, vol. V, p. 144, states that al-Mizzī himself had collected some traditions which he had omitted, and made them into a small treatise, entitled *لواحق الاطراف*.

Ibn Ḥajar al-'Asqalānī also wrote three works on this science. One is the *Ithāf al-Mahara bi Atrāf al-'Ashara*. This work is in eight volumes and deals with the Atrāf for *as-Sihāh as-Sitta* and four, *Musnads*. (See Ḥājī Khalīfa, vol. I, p. 150). The second work is called *Atrāf al-Musnad al-Mutīlī bi Atrāf al-Musnad al-Hanbalī*. As the *Musnad* by Aḥmad bin Muḥammad bin Ḥanbal (died, A.H. 241, A.D. 855)⁴ contains, according to *as-Suyūṭī*, *Tadrib ar-Rāwī Sharḥ Taḥrīb an-Nawawī*, p. 57, forty thousand Traditions, Ibn Ḥajar al-'Asqalānī thought it advisable to write separately the Atrāf for this work and consequently separated the portion of Atrāf concerning this *Musnad*⁵ from the contents of the abovementioned book. The third book was the *Atrāf al-Mukhtāra*. Al-Mukhtāra is an authoritative work on Tradition by al-Ḥāfiẓ Muḥammad bin

¹ Adh-Dhahabī, whose full name was Shams ad-Dīn Abū 'Abdallāh Muḥammad bin Aḥmad bin Uthmān, was born at Damascus in A.H. 673, A.D. 1274. He visited different countries for the sake of study, was a teacher of Traditions at Damascus and wrote many useful books. He died in A.H. 748, A.D. 1348. See my Catalogue of Arabic MSS. in the Būhār Library (Imperial Library, Calcutta), p. 227.

² See for his life, *supra*.

³ See for his life, *supra*.

⁴ Ḥājī Khalīfa, vol. V, p. 534, mentions that it contains thirty thousand Traditions.

⁵ If a book on Traditions is composed according to the system followed in works on jurisprudence, that is grouping the subject-matter written under separate heads, such as on prayer and on fasting, etc., it is called *Sunan*. If it is written according to the names of the Companions of the Prophet, so that, for instance, the Traditions narrated by Abū Bakr

'Abd al-Wāhid al-Maḳḍisī¹ al-Ḥanbalī (died, A.H. 643, A.D. 1245). Ibn Ḥajar al-'Asḳalānī wrote also the *Atrāf* for this work. (See Ḥāji Khalifa, vol. I, p. 344, and vol. V, p. 440.)

Though Ibn Ḥajar al-'Asḳalānī wrote these three works on this subject, there was still scope for a yet better work on the science. To fulfil this need a work was undertaken by 'Abd al-Ghanī² bin Ismā'il an-Nābulī (died, A.H. 1143, A.D. 1731). He consulted the previous works on the subject, improved the arrangement of the Traditions in his book, and omitted non-essentials. In his work he mentions only the last authority who narrated the Tradition from the Prophet in strict alphabetical order. He mentions the name of that authority first and under his name he mentions the different Traditions narrated by him and which occur in the different chapters of various books. This book is called *Dhukhr*³ al-Mawārith fi'd Dalālat 'Alā Amākin al-Aḥādith.

It begins as follows:—

الحمد لله الكبير المتعال المفوض ذخائر الموازيث بأنواع الأحاديث من

أنوار الأحوال على أهل الكمال الخ *

are given separately for those narrated by 'Umar, it is called *Musnad*. If the book is arranged according to the names of narrators, so that, for instance, the Traditions which have been heard from Aḥmad are written separately from those heard from Muḥammad, then the book is called *Mu'jam*. These are the classical definitions of these works, though we find some books of which the titles do not correspond to these definitions. See Bustān al-Muḥaddithīn, p. 35.

¹ Muḥammad bin 'Abd al-Wāhid al-Maḳḍisī was born at Dair al-Mubārak in Damascus, A.H. 569, A.D. 1173. He first went to Egypt in A.H. 595, A.D. 1197 for the sake of study and thence proceeded to Bagh-dād where he became a pupil of Ibn al-Jawzī (died, A.H. 579, A.D. 1200). He visited afterwards different countries, such as Hamdān, Isfahān, Marv, Ḥalab, etc., for further study and subsequently returned to his native land. He died in A.H. 643, A.D. 1245. See Fawāt al-Wafayāt (printed in Egypt, A.H. 1299), vol. II, p. 238.

² 'Abd al-Ghanī bin Ismā'il an-Nābulī was born at Damascus in A.H. 1050, A.D. 1641. He lost his father, who had engaged him to read the Qur'ān and other books, when he was about ten years of age. This misfortune did not stand in his way of his further studies. He sat at the feet of eminent masters and ultimately became himself one of the best scholars of his time. When he was twenty years of age, he began to teach and to compose books. He belonged to the Ḥanafī school and also joined the Kādirī and Naqshbandī orders. He travelled to different countries. In A.H. 1075, A.D. 1664, he went to *Dār al-Khilāfa* (Constantinople) and remained there for a short time; in A.H. 1100, A.D. 1688, he went to Libanon, in A.H. 1101, A.D. 1689, to Jerusalem, in A.H. 1105, A.D. 1693, to Egypt, thence to Ḥijāz, and in A.H. 1112, A.D. 1700, to Tripoli in Syria. In the beginning of A.H. 1119, A.D. 1707, he left his ancestral home in Damascus and settled at Ṣālihiya in the same city. His compositions, which are numerous, are mentioned in Silk ad-Durar, vol. III, pp. 32-37. He died in A.H. 1143, A.D. 1730. See Silk ad-Durar, vol. III, p. 30.

³ In Silk ad-Durar, vol. III, p. 32, it is named *Dhakhā'ir* al-Mawārith fi'd Dalālat 'Alā Mawādi' al-Aḥādith.

The work is in two large volumes. The first volume contains 417 folios and the second 268. In this work an-Nābulṣī has written the *Aṭrāf* for the seven famous works on Tradition mentioned below :—

- (1) Kitāb al-Jāmi' as-Ṣaḥīḥ by al-Bukhārī. It is referred by the letter خ in the book.
- (2) Kitāb as-Ṣaḥīḥ by Muslim. It is referred to by the letter م.
- (3) Kitāb as-Sunan by Abū Dā'ūd as-Sijistānī. It is referred to by د.
- (4) Al-Jāmi' as-Ṣaḥīḥ by at-Tirmidhī and it is referred to by ت.
- (5) Kitāb as-Sunan as-Ṣuḡhrā, called al-Mujtabā. by an-Nasā'ī. It is referred to by the letter س.
- (6 + 7) As there is disagreement among the authorities concerning the sixth book of Traditions in the list of the six canonical books, the author has taken into account both the disputed books. Some say the sixth book should be as-Sunan by Ibn Māja, while others say that the sixth book should be al-Muwatta by al-Imām Mālik. The author has written the *Aṭrāf* for both of them and the letter س refers to the former and ط to the latter. An-Nābulṣī has divided his book into seven chapters, in which the names of the Companions of the Prophet are mentioned in alphabetical order. These chapters are as follows :—

Fol. 6a الباب الاول في مسانيد الرجال من الصحابة اهل الكمال

The whole of the first volume is devoted to this chapter.

The second volume has the following :—

الباب الثاني في مسانيد من اشتهر بالكنية من الصحابة و من لم

Fol. 1a يعرف اسمه او اختلف في اسمائهم
الباب الثالث في الميهمين من اسماء الرجال من الصحابة اهل

Fol. 150a الكمال مرتبة على ترتيب اسماء الرواة عنهم
الباب الرابع في مسانيد النساء من الصحابة اولات الهداية و النجابة

Fol. 163a على ترتيب حروف المعجم

Fol. 242a الباب الخامس فيمن اشتهر بالكني من النساء الصحابيات
الباب السادس في الميهم من اسماء النساء الصحابيات مرتبة على

Fol. 248a ترتيب اسماء الرواة عنهن عن النبي صلى الله عليه وسلم
الباب السابع في المراسيل من الاحاديث و اسماء رجالها مرتبة على
حرف المعجم و في آخر ذلك ثلاثة فصول في الكني و

Fol. 251a

فى المبتدئين وفى النساء

Fol. 265b

فصل فى الكنى

Fol. 267b

فصل فى المبتدئين

Fol. 267b

فصل فى النساء

I quote below the first Tradition from the book :—

حرف الهمزة

ابيض بن حمال الحميرى المازنى

حديث انه وفد الى النبي صلى الله عليه وسلم فاستقطعه الملع الذي بهارب

و فيه لاحمى الا في اراك - د في الخراج عن قتيبة بن سعيد

و محمد بن احمد القرشى - ت في الاحكام عن قتيبة - ه فيه

عن محمد بن يحيى بن عمر *

An-Nābulsi presented the autograph copy of his book to the Sawlatiya Library in Mecca. A transcript of it was brought to Karachi, and from this transcript another copy was made, which is in the possession of a friend of mine, Maulavi 'Abdallāh at Howrah.

The system, which an-Nābulsi has adopted, has no doubt diminished to a great extent the troubles, which the eminent masters of the *Hadith* previously experienced owing to the absence of such an arrangement. But as it is absolutely necessary to know the names of the companions of the Prophet in order to find a Tradition, I think that at present very little benefit can be derived from this kind of work; because very few scholars nowadays remember all the names of the companions of the Prophet and the Traditions which each narrated. In view of these difficulties, a modern scholar, Muhammad Sharif bin Muṣṭafā al-Tūḳādī, has compiled two books on this science; one for the text of al-Bukhārī which was printed in Egypt, A.H. 1296¹; and the other for Muslim which was also printed in Egypt, A.H. 1290.² He named the former work *Miftāḥ Ṣaḥīḥ al-Bukhārī* and the latter *Miftāḥ Ṣaḥīḥ Muslim*, and the two books together *Miftāḥ aṣ-Ṣaḥīḥain*. He completed this task in A.H. 1312 and the work was printed in Constantinople in A.H. 1313. The *Miftāḥ Ṣaḥīḥ al-Bukhārī* has 192 pages and the *Miftāḥ Ṣaḥīḥ Muslim* 52 pages. In this work the author also pointed out the volumes and

¹ *Iktifā' al-Kunū'*, p. 126, mentions that this *Bukhārī* is printed at Būlāḳ in 8 vols.

² This edition of Muslim is printed in 2 volumes at Būlāḳ; see *Iktifā' al-Kunū'*, p. 126.

pages of the three famous commentaries on al-Bukhārī, by (1) al-Kaṣṭalānī,¹ printed in Egypt, A.H. 1293; (2) al-ʿAska-lānī,² printed in Egypt, A.H. 1301; and (3) al-ʿAinī³ al-Hanafī, printed in Constantinople, A.H. 1309; and only one commentary on Muslim by an-Nawawī,⁴ printed in Egypt, A.H. 1293, on the margin of al-Kaṣṭalānī's above-mentioned commentary on al-Bukhārī. The author arranged the Traditions in alphabetical order and in the right hand columns he mentions the volume and page numbers of al-Bukhārī and its commentaries. In the centre he gives the Traditions. On the left hand are found the numbers of the chapters and their headings. I give below the two initial Traditions as they occur in the book.

هذا مفتاح صحيح البخاري

| اسمى المباحث | الاحاديث النبوية | عسقلاني | | عيني | | بخاري | | الاحاديث النبوية | الاسمى المباحث |
|-----------------|---------------------|---------|-----|------|-----|-------|-----|--------------------------|-------------------|
| | | ج | ص | ج | ص | ج | ص | | |
| كتاب المغازي | ٧٩ | ٨ | ٨١ | ٨ | ١٤٦ | ٥ | ١١٧ | اثننا بالمفتاح | ٧٩ |
| كتاب الهبة | ٢١ | ٥ | ١٦٦ | ٦ | ٢٩٢ | ٣ | ١٢٨ | اثن المسجد فصل ركعتين | ٢١ |

¹ Al-Kaṣṭalānī, whose full name was Aḥmad bin Muḥammad, was born in A.H. 851, A.D. 1448 at Cairo. He studied in his native country under distinguished scholars, made the pilgrimage to Mecca several times and during his stay there he also studied under scholars of the sacred city. He is the author of many works. He died in A.H. 923, A.D. 1517. See an-Nūr as-Sāfir, fol. 79b, and Brockelmann, vol. II, p. 73. His commentary on al-Bukhārī is called *Iṣṭihād as-Sārī li Sharḥ Ṣaḥīḥ al-Bukhārī*, and has been printed several times. Lithographed in 10 volumes in Cawnpur, A.H. 1284; in Egypt, A.H. 1285 and also in A.H. 1304-06. See Ellis, Catalogue of Arabic Books, British Museum, vol. I, p. 185.

² ʿAska-lānī's full name is Aḥmad bin ʿAlī bin Hajar al-ʿAska-lānī. See for his life, *Supra*. His commentary on al-Bukhārī is called *Fath al-Bārī bi Sharḥ Ṣaḥīḥ al-Bukhārī* and has an introduction, called *Hudā as-Sārī*, printed in Egypt in 14 volumes, A.H. 1301.

³ Al-ʿAinī, whose full name was Maḥmūd bin Aḥmad bin Mūsā, was born in A.H. 762, A.D. 1360. He studied law under his father who was a Kādī of ʿAintāb. After the death of his father he visited various Syrian towns, undertook a pilgrimage to Mecca and returned from there in A.H. 788, A.D. 1386. He settled finally at Cairo and died in A.H. 855, A.D. 1451. See my Catalogue of the Būhār Library (Imperial Library, Calcutta), p. 38. His commentary on al-Bukhārī is called *ʿUmdat al-Kārī li Sharḥ Ṣaḥīḥ al-Bukhārī* and is printed in 11 volumes in Constantinople in A.H. 1309-10.

⁴ An-Nawawī's full name was Muḥī-ad-Dīn Abū Zakariya Yahyā bin Sharaf an-Nawawī. He was born in A.H. 631, A.D. 1233 at Nawā

هذا مفتاح صحيح مسلم

| اسمى المباحث | ج | الاحاديث النبوية | مسلم ج | نوى ج | ع |
|--------------|----|-----------------------|-----------|----------|-----|
| كتاب الحج | ٦٧ | اثنني بالمفتاح و الله | ١ | ٣٧٦ | ١١ |
| المساجد | ٧ | اثنني بنا اين الله | ١ | ١٥١ | ٢٥٢ |

Even if the printed editions of the books, on which this work is based, be not available, scholars will be benefited by this book if they refer to the left hand side, where the numbers of chapters and their headings are given.

I was glad to learn from Dr. A. Siddiqi that concordances of *as-Sihāh as-Sitta* and *al-Musnad*, by al-Imām Aḥmad bin Hanbal, are in course of preparation under the supervision of Professor A. J. Wensinck of the Leyden University. The system to be followed, as Professor Wensinck subsequently informed me, is to catalogue all important words occurring in a Ḥadīth, and also to note all words of Theological, Geographical and Linguistic interest and importance. The publication of this work will, undoubtedly, be welcomed by Arabic scholars in general and the students of the Ḥadīth in particular.

near Damascus. He came in A.H. 649, A.D. 1251 to Damascus to study the Tradition and other branches of learning. He made the pilgrimage with his father in A.H. 651, A.D. 1253. He died in A.H. 676, A.D. 1278. See my Catalogue of the Būhār Library (Imperial Library, Calcutta) p. 193. This commentary is called *Minhāj fī Sharḥ Muslim bin al-Ḥajjāj*. It was lithographed at Lucknow, A.H. 1285, and at Dehli, A.H. 1302. It was also printed on the margin of Kaṣṭalānī's commentary on al-Bukhārī, printed in Egypt in ten volumes.

A Sketch of the Life of Sarmad.¹By MAULAVI 'ABDU'L WALI, *Khan Sahib*.

We know very little of Sarmad, and the little that we know is often of conflicting nature. While all writers are agreed that the poor man was tried under an order of the Emperor Aurangzib-'Alamgīr by a Council of Ecclesiastics and beheaded, the precise nature of the charges, for which he was condemned are variously stated. The only reliable account of the early Indian career of Sarmad is to be found in the *Dabistān-i-Madhāhib*, whose author according to Dr. Rieu was a Zoroastrian, and who was, in my opinion, of uncommon power of observation and research. The author of the *Dabistān* met Sarmad in 1057 H (1647 A.D.) at Haidarābād (Deccan), and his Chapter on Judaism is entirely based on the informations gathered from Sarmad himself. As to Sarmad's later careers, I have to depend on political and literary chronicles written during the reign of Aurangzib and after him. In his Urdū translation of "Bernier's Travels,"² the late *Khālifa Sayyad Muḥammad Husayn* of Patiala has quoted an account of the trial and execution of Sarmad from 'Aqil *Khān Rāzī* and other historians of the time of the Emperor Aurangzib. *Shir Khān Lodī*, the author of *Mir'ātu'l-khiyāl*, has quoted some of the utterances of the accused for which the Emperor had him arraigned. *Haji Lulfi-i-'Alī Adhar* in the *Ātishkadah* has given a brief paragraph to the martyr. *Mir Husayn Dūst Sanbhālī*'s account is concise and methodical. The *M'āthiru'l-'Umarā* mentions the chief facts briefly under the biography of *I'timād Khān* Mulla 'Abdu'l-Qavī. *Nasrābādī*'s note is short but interesting. 'Alī Qulī *Khān Dāghistānī* gives rather a fuller and chronological narrative of the charges for which Sarmad was tried. *Ridā Qulī Hidāyat* has published in the *Riyāḍu'l-'Ārifīn* a somewhat disjointed and diffused notice of Sarmad under the title of *Sarmad-i-Kāshī*. It is from these and other sources and traditions, that the following brief sketch of the life, trial and execution of Sarmad is compiled.

Of the European travellers of the time, Bernier has made a passing allusion to the nudity and execution of Sarmad. But *Manucci*'s narrative regarding Sarmad's relation with

¹ A preliminary note on the subject was published by me in the *Indian Antiquary* for 1910 and a revised letter of *Dara Shikoh* in 1923. The present paper contains an up-to-date result of my investigations on Sarmad.

² Printed at Muradabad, in 1888.

prince Dārā and his subsequent execution by Aurangzib is more circumstantial and interesting.

Sa'id,¹ whose *takhalluṣ* or *nom-de-plume* was Sarmad (everlasting) was born at Kāshān in Persia of Jewish parents and belonged to the family of Rabhis. Having mastered the religion of the Old Testament, Sa'id became converted to Islām. He read science and metaphysics in Irān with such renowned scholars as Mulla Ṣadru'd-Dīn Shirāzi, otherwise called Mullā Ṣadrā and Mirza Ābu'l-Qāsim Fandarsaki,² and other eminent scholars of the time. Sa'ida-i-Sarmad, then turned his attention to trade. He set up his business in earnest at the town of Thath,³ and was doing his business well, when the following incident turned his mind from everything. Sarmad fell in love with a lad of Bania caste, by name Abhai Chand. He altogether lost the equilibrium of his mind, neglected his business, and lived thenceforth in *partibus naturalibus*. In this state he used to go and sit at the door of his beloved. The following distich shows the true sentiment of Sarmad, who was a great poet, as well

نمیدانم درین چرخ کم—دیر خدای من ابھای چند است یا غیر

I know not if in this spherical old monastery (world),
My God is Abhai Chand or some one else.

The boy's father, seeing the earnestness of the man, and the purity of the attachment, allowed Sarmad to come to his house. Abhai Chand became so much attached to Sarmad that he too could not bear to live apart from him.⁴

Soon after this, both left Thāth. Abhai Chand was educated by Sarmad in his tenets. He read with him the Pentateuch and the Psalms. The Persian translation of the opening chapters of the Genesis made by Abhai Chand is incorporated in the Dabistān under the title of the "Book of Adam." Sarmad's opinion regarding Judaism, Christianity, Islām, and also about Moses, Aaron, Abraham, and David is interesting. Nude as he was, his opinion on these questions is worth quoting. According to Sarmad, it was not incumbent on the Beni Israel to cover the private parts of the body; the prophet Isaiah used

¹ His name was Sa'id and pen-name Sarmad. It is by the latter name that he is known both to Asiatic and European writers. He is variously called Sa'idā-i-Sarmad or merely Sa'ida, Muhammad Sa'id, 'Sarmad' or Mullā Sarmad. He was a great scholar and was well-versed in Arabic philosophy and science.

² A brief notice of these two eminent scholars has been published in my previous article in the "Indian Antiquary" for 1910.

³ Thath (or Tata) in Sind on the shores of the Indus.

⁴ The author of the *Riyādu'sh-Shu'ārā* does not mention of Abhai Chand. He says that at the port of Surat he got a *jazbaa* (rapture), gave away all he had, doffed his clothes and wandered in deserts. There is apparently a mistake in Surat for Thath, as the Dabistan, whose author knew Sarmad intimately, clearly mentions the latter place.}

1924.]

his old age. The following distich of Abhai

It is also ^{هم مطیع فوقانم هم کشیش و ربه} ing predicted ^{شاهجهان، و مسلمانی} not difficult ^{رسمی بودانم کافرم} executioner a follower of the Furqān, a priest, a monk It is said ^{شاه} Rabbi, an infidel, and a Musalman. from. may mean that I am everything or nothing. To me ^{تم} no difference between the one or the other form of cov.

a Sarmad with Abhai Chand came to Dihli, during the reign his, eror Shāhjahān. People flocked round him, and many conim to be a man of great sanctity and supernatural and Prince Dārā-Shikōh, the eldest son of the Emperor, evotion to Brahmanical dogma and theosophical well known, was one of his constant visitors. It was Tih, who brought the miraculous powers of the saint In of the Emperor. The prudent Emperor deputed He also ^{شاه} one of the Umārā of his court to ascertain the ^{چشم کشودیم} visited the naked saint, and while ^{شب فتنه غنودیم} recited the following

There was an uproar and we ^{بر سر} eternal sleep, ^{کشفی} Saw that the night of wickedness ^{شاه} mad is to accuse

‘Āqil Khān Rāzī, the court ch writes that when the executioner waudity (kashf) of fatal blow, Sarmad uttered :—

^{آن نیز به تیغ از سرما وا کردند} of government,

The nakedness of the body was the duple of I’timad Mulla Shaykh

Friend

That too was severed, with the sword, fyou remain The Mulla

According to another version Sarmad utt ly: Shaitan following

^{یکه با ما یار بود قصه کوتاه کرد ورنه درد سر بسیار بود}

My head was severed from body by that flir ^{ی beauti-} companion,

The story was shortened otherwise the het ^{آنکس} have been too severe.

One Shāh Asadu’l-lāh, who was one of Sarmad ^{پوشانم} ons, went to Sarmad and told him: “Do cover yot and utter the Creed in full, and you would be let off, looked up, said nothing in reply and uttered the couplet :—

چشمی بدو جام برده از دست مرا
دزد عجبی برهنه کرد مرا
A lovely height (figure) has made me wish parents
A two-cupped eye has taken me out mastered the
He is at my armpit, and I in quest of inverted to
A wondrous thief has made me naked. with such
herwise

The Mullā became very much put out and in a and
with a Council of 'Ulama (Fuqahā or lawyers) gave an
nion that Sarmad was fit to be executed. This fatwa in
fied by Aurangzib, and Sa'id-i-Sarmad was executed.

It is not difficult to gauge the motive of Aurangzib's
an inoffensive mendicant and a wandering Jew. To be
may be an offence against public decency, but surely
not be an offence sufficiently strong to take one's life.
Lives of Poets (Tazkiras) have given different reasons
of which was Sarmad's declining to put on cloth.
ordered to do so.

Sarmad was a Sufi poet, and there are
he composed that might be construed by him
against Islamic religion. On a monastery (world),
Emperor Aurangzib, with some one else.

orthodoxy, ordered at the earnestness of the man, and
under the guidance allowed Sarmad to come to his
was summoned and so much attached to Sarmad that
Emperor himself y apart from him.⁴

"La-ilāha illallāh" left Thāth. Abhai Chand was edu-
to utter only the poets. He read with him the Penta-
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(Ilallāh, but made by Abhai Chand is incorporated in
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nominately, clearly mentions the latter place.)

tr

It is also said that Aurangzib taunted Sarmad for his having predicted that Dārā Shikōh would be the Emperor after Shāhjahān, which prediction was not fulfilled. It is, however, not difficult to reconcile what actually took place, when the executioner cut the unfortunate man's head with his sword. It is said that when the condemned man was being led away from the tribunal to the place of execution, he uttered *ex-tempore*, 24 quatrains. The crowd was so dense that one could pass through it with difficulty. When the executioner, a low caste man of sweeper class (or kannas), approached with his naked sword, he wanted, according to custom, to cover the condemned man's head. Sarmad hinted not to do it, smiled and addressing the executioner, said :

رسیده یار عریان تیغ این دم بهر رنگی که ائی می شناسم

The friend with the naked sword has now arrived.
In whatever disguise thou mayst come I recognise thee.

He also uttered the following distich :—

شوری شد و از خواب عدم چشم کشودیم
دیدیم که باقیست شب فتنه بنودیم

There was an uproar and we opened our eyes from the eternal sleep,
Saw that the night of wickedness endured, so slept again.

‘Āqil Khān Rāzī, the court chronicler of Aurangzib writes that when the executioner was about to give the fatal blow, Sarmad uttered :—

عریانی تن بود غبار ده دوست آن نیز به تیغ از سرما وا کردند

The nakedness of the body was the dust of the road to the Friend
That too was severed, with the sword, from our head.

According to another version Sarmad uttered :

سر بریده از تنم شوخیکه با ما یار بود قصه کوتاه کرد ورنه درد سر بسیار بود

My head was severed from body by that flirt, who was my companion,
The story was shortened otherwise the headache would have been too severe.

One Shāh Asadu'l-lāh, who was one of Sarmad's companions, went to Sarmad and told him : "Do cover your nakedness and utter the Creed in full, and you would be let off." Sarmad looked up, said nothing in reply and uttered the following couplet :—

دیر نیست که آواز منصور کهن شد من از سر خود جلوه دهم دار و رسن را^۱

A long time since the fame of Mansūr became an ancient relic

I will exhibit with my head the gallow and cord.

Sarmad died valiantly.

‘Ali Quli Khān Wāliḥ Dāghistāni, the author of the *Riyāḍu’s-Shu‘arā*, writes that on account of Sarmad’s promise to Dārā Shikōh to confer on the latter the thorne, Aurangzib’s mind was greatly irritated against the naked saint. On his accession to the throne, the Emperor ordered Mulla Qavī, who was the Qāḍī’l-Qudāt, to go and interrogate Sarmad as to the cause of his nudity. The reply, as noted before, was a personal affront to the Mulla, which greatly displeased that high ecclesiastic. He returned to His Majesty and signed a *fatwa* for Sarmad’s death. The Pādshāh said that Sarmad should be called to the Darbār, and questioned by the scholars of the time (*fuḍalā i-‘aṣr*). This was accordingly done. His Majesty’s interrogatory that the promise held out to Dārā Shikōh as to succession had turned incorrect, being put, Sarmad replied: “God has given him the eternal sovereignty and my promise is not falsified.” His Majesty was greatly displeased with this reply. The ‘Ulamā then ordered him to repent, and to cover his nakedness, which he declined to do. As a consequence, the sentence of death was passed. He was beheaded near the Dihli Jami’ Mosque, in the midst, of an unprecedentedly huge crowd, and was buried there.¹ ‘Ali Quli also speaks other matters, and the following significant fact. On the day of execution, the Emperor said to the ecclesiastics (*fuḍalā*) that a man was not liable to be executed merely for his nudity. He should be required to pronounce the Islamic Creed. Addressing the saint, they said “How is it that inspite of your great learning, you only utter the half of the *Kalīma* or Creed and not the remaining part? Sarmad gave the reply, already mentioned, *viz.*, that ‘I am still absorbed in the negative part, why shall I tell a lie? So, according to this version, Sarmad’s execution, at the suggestion of the Sovereign, was made according to the Islamic Law. It is also written by the aforesaid writer, that after Sarmad was beheaded, his tongue uttered the remaining part of the creed (Ilallāh). The above incidents, written by various writers, fully corroborate the opinion that the prosecution and the Judges were prejudiced against the unfortunate man. So far as I can see, the execution was perhaps, in the opinion of Aurangzib, necessary. Nude, living the life of a mendicant, composing delightful quatrains,

¹ To the north-east of the masjid is the grave of Sarmad, p. 255, *The Archaeology and Monumental Remains of Dehli*, by Carr Stephens, 1876.

الْفُتُوحَاتُ الْإِلَهِيَّةُ فِي نَفْعِ أَرْوَاحِ الذَّوَاتِ الْإِنْسَانِيَّةِ¹

* بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

*Fol. 1b.

الحمد لله رب العالمين والعاقبة للمتقين ولا عدوان إلا على الظالمين
و الصَّلوة والسلام على سيد المرسلين وعلى آله وصحبه أجمعين وبعد فهذا
*Fol. 2a. مختصر في *التَّصَوُّفِ وسميته بالفتوحات الإلهية في نفع أرواح الذوات² الإنسانية
٥ مشتمل على عشرة فصول - الأول في بيان تعريف التَّصَوُّفِ وموضوعه - الثاني
في بيان أركانه والطريق إلى الله تعالى - الثالث في بيان³ التَّوْحِيدِ والإيمان
*Fol. 2b. والاسلام - الرابع في بيان العلم الدُّنْيَى وعلم اليقين وعينه وحقه وأصلها - *
الخامس في بيان الإلهام والوحي والفراسة - السادس في بيان المحاضرة
والكشف والمكاشفة والمشاهدة والمعينة - السابع في بيان الشريعة والحقيقة⁴
10 والطريقة - الثامن في بيان سبب السعادة والشقاوة - التاسع في بيان الخواطر -
العاشر في بيان كيفية أخذ العهد ولبس الخرقة وتلقين الذكر - الفصل الأول
*Fol. 3a. في بيان تعريف التَّصَوُّفِ وموضوعه - التَّصَوُّفُ بمعنى العلم علم * باصول يعرف
بصلاح القلب⁵ وسائر الحواس وبمعنى العمل إصلاح ما ذكر ويقال هو ترك
الاختيار ويقال هو حفظ حواسك ومراعاة انفسك ويقال هو الجِدُّ في السلوك
١5 إلى ملك الملوك⁶ ويقال غير ذلك وقيل التَّصَوُّفُ أوله علم وأوسطه عمل⁷

¹ Title supplied from l. 4 *int.*—q.v.

² A, C; but الذات in B; MS. VII, 605, Sult. Lib., Cairo; and MS. 3035 Berlin (Ahlwardt's Cat.).

³ A wrongly adds أركان, cf. 12^b *int.*

⁴ B, C invert; والطريقة والحقيقة, but cf. 14¹¹ *int.*

⁵ C adds: وفسادة ⁶ C: الملوك

⁷ عمل supplied from 'Awārif, I, 141, and Dict. Tech. Terms, ed. Sprenger, Calc., 1862, art. *as-Ṣūfī*, 840. B, C read عمل

و آخره موهبة - و موضوعه صلاح القلب و سائر الحواس - الفصل الثاني في بيان اركان التصوف و الطريق * الى الله تع فاركانه ¹ عند بعضهم عشرة - اولها تجريد التوحيد و هو ان لا يشوبه خاطر تشبيه ولا تعطيل - ثانيها فهم السماء و هو ان يسمع بحاله لا بالعلم ² فقط - ثالثها حسن العشرة - رابعها ايثار الايثار و هو ان يؤثر على نفسه غيره بالايتار ³ - خامسها ترك الاختيار رضى باختيار الله ⁵ تع - سادسها سرعة الوجد و هي ان * لا يكون فارغ السربا بتثير الوجد ولا ممتلى ⁴ السرب مما يمنع من سماع زواجر الحق و الوجد ليهب يتأجج ⁵ من شهود عارض مقلق - سابعها الكشف عن الخواطر ⁶ و هو ان يتحدث عن كل ما يخطر على سره فيتبع ما ⁷ للحق ⁸ ويدع ما ليس له - ثامنها كثرة الاسفار لشهود الاعتبار في الافق و رياضة ⁹ النفوس ¹⁰ - تاسعها ترك الاكتساب بناء على انه التوكل * و سياتي ما فيه ¹¹ - عاشرها تحريم الادخار في حاله ¹² الا ¹³ في واجب العلم و ظاهر الشرح - و الطريق الى الله تع بعدد انفس المخلوقات ¹⁴ و اقربها و اوضحها ما قصدنا بيانه و ذلك ان الطرق ¹⁵ وان كثرت محصورة في ثلاثة انواع - اولها طريق ارباب المعاملات بكثرة الصوم و الصلوة و تلاوة القرآن وغيرها من الاعمال الظاهرات ¹⁶ و هم الاختيار - ثانيها طريق * ارباب المجاهدات بتحسين الاخلاق و تزكية النفس و تصفية القلب و السعى فيما يتعلق بعمارة الباطن و هم الابوار - ثالثها طريق السائرين الى الله و هم الشطار من اهل المحبة و هذا الطريق مبني على الموت بالارادة لخبر ¹⁷ موتوا قبل ان تموتوا و هو منحصر في عشرة اصول - اولها القوة و هي الندم

¹ و اركان C:

² بعلم B:

³ في الايتار C:

⁴ يمتلى C: يمتلى B:

⁵ So also C in margin, but in text يتهمج

⁶ See 16³ ff., inf.

⁷ C omits.

⁸ الحق C:

⁹ B: و لرياضة C:

¹⁰ النفوس C:

¹¹ See 9³ ff., inf.

¹² B, C: حاله

¹³ B, C: لا

¹⁴ B: الخلاق

¹⁵ B, C: الطريق, probably correct.

¹⁶ B, C: الظاهرة

¹⁷ Trad. unauthenticated; see under Bābu'l-Mīm, *al-Maqāṣid al-Hasanah* of as-Sakhāwī, and *al-Mawāḍi'āt* of 'Alī al-Qārī al-Hirawī.

*Fol. 5b. ويتحقق بالاقلاع وعزم ان لا يعود وتدارك ما يمكن تداركه * ثانياً الرُّجُوعُ فِي الدُّنْيَا

عَنِ اسْبَابِهَا وَشَهَوَاتِهَا^١ مَالِهَا وَجَاهِهَا اخْذاً عَنِ خَيْرِ الدُّنْيَا حَرَامٍ عَلَى اَهْلِ الْآخِرَةِ
وَالْآخِرَةِ حَرَامٍ عَلَى اَهْلِ الدُّنْيَا وَهِيَ حَرَامَانِ عَلَى اَهْلِ اللّٰهِ تَع - ثَالِثُهَا التَّوَكُّلُ
عَلَى اللّٰهِ قَالَ اَكْثَرُ الصُّوفِيَّةِ هُوَ الْخُرُوجُ عَنِ الْاَسْبَابِ ثَقَّةً بِاللّٰهِ تَع وَقَرِيبَ مِنْهُ
٥ قَوْلُ بَعْضِهِمْ هُوَ تَرْكُ السَّعْيِ فِيهَا لَا يَسْعُهُ^٢ قُدْرَةُ الْبَشَرِ قَالَ اللّٰهُ تَع وَمَنْ يَتَوَكَّلْ

*Fol. 6a. عَلَى * اللّٰهُ فَسَوْ حَسْبُهُ^٣ وَالْمُحَقِّقُونَ^٤ مِنْهُمْ وَمَنْ غِيَرَهُمْ قَالُوا التَّوَكَّلْ عَلَى

اللّٰهِ^٥ قَطَعَ النَّظَرَ عَنِ الْاَسْبَابِ مَعَ تَهَيُّئِهَا^٦ وَلِهَذَا قَالَ النَّبِيُّ صَلَّى عَلَيْهِ وَسَلَّمَ لَمَنْ قَالَ لَهُ

ارْسِلْ نَاقَتِي وَاتَّوَكَّلْ اَوْ اَعْقَلِهَا وَاتَّوَكَّلْ اَعْقَلِهَا وَتَوَكَّلْ رَوَاهُ الْبَيْهَقِيُّ وَغَيْرُهُ -

(رَابِعُهَا [الْقَنع]^٧ وَ هُوَ الْخُرُوجُ عَنِ الشَّهَوَاتِ النَّفْسَانِيَّةِ (وَ الْمُتَمَتُّعَاتِ الْحَيَوَانِيَّةِ

١٠ اِلَّا مَا اضْطَرَّ اِلَيْهِ مِنَ الْحَاجَاتِ^٨ الْاِلْسَانِيَّةِ)^٩ مِنْ نَحْوِ مَطْعُومٍ^{١٠} وَمَلْبُوسٍ

*Fol. 6b. وَمَسْكَنِ - خَاصَّةً الْعُرْلَةَ وَ هِيَ خُرُوجُهُ عَنِ مَخَالِطَةِ الْخَلْقِ * بِالْاِنْقِطَاعِ اِلَّا عَنِ

خِدْمَةِ شَيْخٍ وَاصِلٍ مُرَوِّبٍ لَهُ فَيَسُو كِفَاسِلَ مَيِّتٍ فَيَنْبَغِي اَنْ يَكُونَ بَيْنَ يَدَيْهِ كَالْمَيِّتِ

بَيْنَ يَدَيِ الْغَاسِلِ يَقْصِرُ فِيهِ بِمَا شَاءَ^{١١} فَلَا يَدُّ لِلْمُرِيدِ مِنْ شَيْخٍ كَامِلٍ يَدَّاهُ عَلَى

الطَّرِيقِ اِلَى اللّٰهِ تَع قَالَ اللّٰهُ تَع فَاسْأَلُوا اَهْلَ الذِّكْرِ اِنْ كُنْتُمْ لَا تَعْلَمُونَ^{١٢} وَمَنْ

١٥ اسْتَبَدَّ^{١٣} بِرَأْيِهِ وَاعْتَرَّ^{١٤} بِمَا عُدَّهٗ مِنَ الْعِلْمِ اسْتِغْنَاءً بِهِ عَنِ شَيْخٍ يُرْشِدُهُ فَقَدْ تَعَرَّضَ

*Fol. 7a. لِاَغْوَاءِ الشَّيْطَانِ * لَهُ وَلِهَذَا قِيلَ مَنْ لَا شَيْخَ لَهُ فَالشَّيْطَانُ شَيْخُهُ^{١٥} وَاصِلُ الْعُرْلَةِ

جَمْعُ الْحَوَاسِ بِالْخُلُوعِ عَنِ التَّصَرُّفِ فِي الْمَحْسُوسَاتِ - سَادِسُهَا [مَلَازِمَةُ الذِّكْرِ]^{١٦}

^١ B : وَ ^٢ B, C, *Sharḥu'r-Risālati'l-Qush.*, III, 46 : تَسْعُهُ.

^٣ *Qur.*, LXV, 3. ^٤ A : الْمُحَقِّقُونَ, but badly.

^٥ B, C omit التَّوَكَّلْ and read أَنَّهُ for اللّٰهُ

^٦ A : نَهَائِثُهَا ; cf. *Sh.*, III, 46 : النَّظَرَ قَطَعَ وَ قَطَعَ النَّظَرَ عَنِ الْاَسْبَابِ مَعَ تَهَيُّئِهَا

^٧ B, C.

^٨ B : الْحَاجَةُ

^٩ B, C.

^{١٠} C : مَطْعَمٌ

^{١١} C : يَشَاءُ

^{١٢} *Qur.*, XVI, 45.

^{١٣} C : اسْتَدَلَّ

^{١٤} C : وَاعْتَرَّ

^{١٥} The saying as attributed to Abū Yazīd al-Bisṭāmī is : مَنْ لَمْ يَكُنْ لَهُ

اِسْتِزَانٌ فَاَمَامُهُ الشَّيْطَانُ (*R.*, 237²⁸).

^{١٦} B, C.

وهى الخروج عن ذكر ما سوى الله بنسيان غيره بان يلزم مراقبته تع دائماً و اذا حصلت المراقبة و يرد¹ بها المشاهدة لم يحتج الى الذكر - قال بعض المحققين بل لا يتصور الذكر معها لانه يقتضى النسيان قال تع * ^{وَمَنْ ذَكَرْ رَبَّكَ إِذَا نَسِيتَ}² اى نسيته و قال كثير نظراً للظاهر معني إذا نسيته نسيته غير الله و³ التعليق بالمشيئة⁴ ولا منافاة بين الكلامين إذ الأول مفروض في الذكر مع المشاهدة⁵ و الثاني في الذكر بدونها و للذكر⁶ ثلاثة أصناف - ذكر لب⁷ و هو ان لا ينساه لا متراجحة و الفه⁸ و ذكر نعوت المذكور وهى⁹ الذكر الذي استولى به شهودها على نفس¹⁰ الذكر * بحيث يغيب عن نفسه¹¹ و ذكر شهود المذكور وهو الذكر الذي تعقبه الغيبة عن الذاكر¹² ايضاً و اصل الذكر لا إله إلا الله و هو مركب من نفى و اثبات فبالنفى تزول المواد الفاسدة التى¹³ يتولد منها مرض القلب¹⁴ من الاخلاق الذميمة الفسائىة و الاوصاف الشهوانية الحيوانية و بالاثبات يحصل مواد صكة القلب من نور الله تع و تجلى¹⁵ الروح بشواهد * الحق و نحوها¹⁶ قال الله تع و أشرق الارض¹⁷ ^{بِنُورِ رَبِّهَا}¹⁸ و قال تع فاذكروني أذكركم¹⁹ - سابعها توجهه²⁰ الى الله تعالى بكلية²¹ و²² خروجه عن كل داعية تدعو الى غير الحق فلا يبقى²³ له مطلوب ولا محبوب ولا مقصود إلا الله تع - قال الجنيد رضي الله تع²⁴ عنه لو أقبل صديق²⁵ على الله ألف سنة ثم أعرض عنه لحظة فما فاتة أكثر مما

¹ B, C: , والمراد , better. ² Qur., XVIII, 23.

³ C: او

⁴ B: , بالنسيئة ; some part of نسي seems necessary to the sense.

⁵ C: الذكر

⁶ B, C: قلب , probably correct.

⁷ B, C add به

⁸ B, C: وهو

⁹ C: النفس ¹⁰ C omits.

¹¹ B, C: cf. R., 18416 ; A omits يغيب and has نفسها

¹² See statement of Dhu'n-Nūn al Miṣrī, R., 133²¹, and of al-Junaid, Tadh. 'Awl., II, 32²³.

¹³ A: الذي.

¹⁴ B, C: تحصل

¹⁵ C: و تحلى الارواح

¹⁶ C: ونحوها كما

¹⁷ B, C insert: زالت عنها صفاتها

¹⁸ Qur., XXXIX, 69.

¹⁹ Qur., II, 147.

²⁰ B, C: التوجه

²¹ B: بالكلية

²² B: وهو

²³ C: فلم يبق

²⁴ صادق in R., 24²¹, Tadh. 'Awl. II, 30.

*Fol. 9a. ناله * - ثامنها الصبر وهو ثبات باعث الدين في مقابلة¹ باعث² الهوى وقيل هو الخروج عن حظوظ النفس بالمجاهدة في الطاعة لتصفية النفس وتجلية³ الروح وهذا تعريف له ببعض لوازمه والصبر طريق التوكل فمن لازم الصبر ولم يرد مفارقة حب البلاء ولذلك قيل ان الله اذا ابلى اوليائه ببلاء لم يعذبهم به بل *Fol. 9b. يعذبهم⁴ بهم فالبلاء عذاب على⁵ العوام⁶ * والخواص عذاب على البلاء وهذا من جنس التخييلات الشعريّة كما في قول الشاعر -

وكم غمرة قد جرعتني كؤسها فجرعتني من مر⁷ صبرى اكوسها
وهذا نظر للغالب من ان العوام لا يصبرون على البلاء والا⁸ فالصبر كما قال سهل
القسري مقدس⁹ تقدس به الاشياء الى تطهيره فهو مطهر¹⁰ العوام¹¹ من الذنوب
*Fol. 10a. * والخواص من الاشتغال * بغير الله فالبلاء انما يكون عذاباً على العامي¹²
ذا لم يصبر¹³ - تاسعها المراقبة وهي الخروج عن حوله وقوته مراقباً
لمواهب الحق متعرضاً لنفحات الطافه¹⁴ معرضاً عما سواه مستغرقاً في بحر
هواه - عاشرها الرضاء وهو الخروج عن رضاء نفسه بالدخول في رضاء الله¹⁵ نع¹⁶
*Fol. 10b. بالتسليم لاحكام الازلية والتفويض للتدبيرات الابدية بلا اعراض ولا اعتراض *
¹⁵ فمن [بداوم]¹⁶ بارادته على هذه الاصول السنية منحه الله نع بانواره لقلبه¹⁷ وفدوحات
اللدنية¹⁸ وعلومه الدنيية¹⁹ كما قال نع او من كان ميئاً فاحييناه²⁰ 21 اي او من كان
ميئاً بالاوصاف الظلمانية في الشجرة الانسانية فاحييناه باوصاف الربانية وجعلنا
له نوراً²² من انوار جمالنا يمشى به في سرائر²³ الناس بان يتفوس فيهم ويشاهد

¹ B, C: مقاومة ² B omits.

³ B, C: وتحلية

⁴ يعذبهم بالبلاء عذاباً دون عذاب العوام: C: 6,

⁵ B: عند

⁷ B: حرى C: حر: for context, see 19²⁰ in/.

⁸ C omits.

⁹ C omits.

¹⁰ C: مطهر

¹¹ C: للعوام

¹² C: العاصي

¹³ B, C add عليه

¹⁴ B: الطاعة; C:

¹⁵ D.T.T., art. رضاء (597).

¹⁶ B, C.

¹⁷ Read with B, C: لقلبه for العلية

¹⁸ B: الالهية C: الازلية

¹⁹ B, C: اللدنية

²⁰ Qur., VI, 122.

²¹ B, C add: الآية

²² B, C: سائر

- *Fol. 11a. احوالهم كَمَنْ مَثَلُهُ * فِي الظُّلُمَاتِ لَيْسَ بِخَارِجٍ مِنْهَا¹ اى كَمَنْ بَقِيَ فِي الظُّلُمَاتِ²
 الشجرة الانسانية ليس بخارج منها والرضى يستلزم التواضع وهو تدلل القلوب
 العلام الغيوب³ ومثله الخشوع الا [اَنَّهُ اعم منه اذا لا يكاد يستعمل
 الخشوع الا]⁴ فيما بين الرب والعبد والتواضع ينصور بين العباد
 فلا يقال خشع العبد لمثله و يقال تواضع له - الفصل الثالث في بيان⁵
 التوحيد * والايمان والاسلام فالتوحيد هو افراد الحق حال كونه⁶
 متوحدا من كُلِّ ما سواه بان يغنيك الحق عما عداه حتى عن نفسك -
 والايمان حقيقى وكامل فالحقيقى تصديق القلب بما علم مجئ الرسول به
 من عند الله ضرورة⁷ بشرط تلفظ القادر بالشهادتين والكامل ذلك مع امتثال
 بقية ما ورد به الشرع من صلوة وصوم وغيرهما * - والاسلام حقيقى وكامل
 ايضا فالحقيقى تلفظ القادر بالشهادتين بشرط تصديق القلب بما مر والكامل ذلك
 مع امتثال بقية ما ورد به الشرع من صلوة وصوم وغيرهما - الفصل الرابع في
 بيان العلم اللدنى وعلم اليقين وعينه وحقه واصلا فالعلم اللدنى الذي
 علمه الله تعالى الارواح حين خاطبهم بقوله اَلَسْتُ بِرَبِّكُمْ⁸ وهو * معرفة ذات
 الله تع و صفاته بمشاهدة الانوار⁹ و ذوق ببصائر القلوب¹⁰ لا بدلائل العقل¹¹
 وشواهد النقل وقيل هو طريق معرفة ذاته تع لانها انما تحصل بما امر¹²
 به من التعرف وهو تع يتعرف الى عبادة بقدر ما وهبهم من العلم اللدنى
 ومن تعرف اليه عرف نفسه ومن عرف نفسه عرف ربه ومن عرف ربه¹³ جهل نفسه
 فالتعرف يتعلق * بمعرفة النفس ومعرفة النفس تتعلق بمعرفة الرب ومعرفة

¹ Qur., VI, 122.

² seems to be omitted : B : ظلمات ; C omits the clause.

³ Def. of al-Junaid, R., 89⁷⁹

⁴ B, C, Sh., III, 11.

⁵ B : كونك

⁶ Cf. D.T.T., art. ايمان, 94 ; see 20 + inf.

⁷ Qur., VII, 171.

⁸ B, C : لانوارها

⁹ Cf. D.T.T., 1066 (art. العلم اللدنى).

¹⁰ B : ابدك C : امدك

¹¹ See under Bābu'l-Mīm, al-Maqā'id al-ḥasanah, and al-Mawḍū'āt.

الربّ تتعلّق بهجّل النفس ففى الخبر اعرفتم بنفسه اعرفكم برّبّه - و اليقين
ظهور نور الحقيقة فى قلب الموقن¹ عند كشف استار² البشرية بشهادت الذوق
و الوجد³ لا بدالة العقل و النقل و ذلك يحصل بالجورم و مطابقة الواقع
*Fol. 13b. و يُطلق اليقين مجازاً على نتيجة ذلك و هى اطمئنان القلب و وثوقه * بموعد
⁴ الله تع فليستريح⁴ العبد من تعب السعى فى تحصيل المعارف الدينية فيكون حقيقة
فيما هو من قبيل⁵ العلوم و المعارف مجازاً فيما هو من قبيل⁶ الأحوال و المقاصات
وقيل هو مشترك بينهما - و علم اليقين ما حصل عن نظر و استدلال - و عين
اليقين ما حصل عن مشاهدة و عيان - و حق اليقين ما حصل عن العيان مع
*Fol. 14a. المباشرة⁶ - فالأول منها * كمن علم بالدليل وجود الجنة و الذنبي كمن حضرها
10 و شاهدها و الثالث كمن شاهدها و دخلها⁷ و قال بعضهم علم اليقين حال
التفوق و عين اليقين حال الجمع و حق اليقين حال جمع الجمع⁸ - قال
الشيخ ابو القاسم القشيري رحمه الله التفوق شهود الاعتبار لله و الجمع شهود
الاعتبار بالله و جمع الجمع الاستيلاء بالكلية و فناء الشعور بغير [الله]⁹ عند غلبة
*Fol. 14b. الحقيقة¹⁰ * و قد بسّطت الكلام على ذلك فى شرح¹¹ رسالته - و أصل الاربعة
15 المذكورة وان تفاوتت الايمان و قد مرّ بيانه¹² - الفصل الخامس فى بيان
الالهام و الوحي و الفراسة فالالهام لغة ايّقاء شىء فى القلب كما يقال الهمة الله
الصبر و عرفاً ايّقاء شىء فى القلب يطمئن له الصدر يخص به الله بعض
*Fol. 15a. اصفيائه و الصوفية تسميه الخاطر الحَقّاني¹³ - و الوحي لغة يقال لمعان *

¹ الموقن من : A.

² يقينيات، 1548. B omits; but see D.T.T., الاستار C.

³ B, D.T.T., art. يقينيات، 1548. الوجد و الذوق.

⁴ B, C: فيستريح. ⁵ B: قبل. ⁶ Verbatim in D.T.T., 2b.

⁷ Cf. D.T.T., 2b., where the figure is that of the sen.

⁸ Sh., II, 101. ⁹ B. C substitutes: الله و فناء الشعور بغير.

¹⁰ R., 47 10-12, where the last clause reads: الله و فناء الاحساس بما سوى الله
عز و جل عند غلبات الحقيقة.

¹¹ Sh., II, 57. ¹² Sup., 121.

¹³ Verbatim in *Tāju'l-'Arūs* (هم).

منها الاعلام بخفاء و منها الكتابة و عرفاً اعلام الله نبيّه بشرع بواسطة او بدونها
و قد يطلق على اسم المفعول منه اى الموحى كلام¹ الله المنزل على
النبي - و الفراسة معاينة المغيبات² بالانوار الربانية بسبب تفرس اثار الصور³
و أصله خبر اتقوا فراسته المؤمن فانه ينظر بنور الله⁴ - الفصل السادس في

بيان المحاضرة و الكشف * و المكاشفة والمشاهدة و المعاينة فالمحاضرة حضور
القلب مع الحق من وراء السترة⁵ و الكشف حضوره معه و استئشاق الاسرار
الالهية من وراء السترة⁶ و هو ثلاثة اقسام كشف نفس و كشف قلب و كشف سر
و يعبر عن الاول بعلم اليقين و عن الثاني بعين اليقين و عن الثالث

بحق اليقين و الثلاثة علوم لانها اقسام * العلم⁷ باعتبار معلومه ان تعلق
بالذات الظاهرة فعلم اليقين او [بالذات الباطنة فعين اليقين او]⁸
بالحق تع فحق اليقين و قد مرّ بيانها⁹ - و المكاشفة حضوره معه
بنعت¹⁰ البيان التام¹¹ بالبرهان و المشاهدة وجود¹² الحق تع بلا تهمة -
و المعاينة تحقيق معرفة الذات التي لا يصح مع وجودها وجود الف¹³ و كل

منها اكمل مما قبله * على خلاف في بعضه¹⁴ ولا ريب ان معاني هذه الالفاظ وراء
طور العقل ولا يعرفها الا أهل العنايات لانها تتعلق بتوحيد الله و توحيدة تع¹⁵
المتعلق بذاته و صفاته لا يصح ان يكون من مدركات كّل العقول¹⁶ -
الفصل السابع في بيان الشريعة و الطريقة¹⁶ و الحقيقة فالشريعة الامر بالتزام

المصور: C. الغيبات: A, B, C. (وحى). Cf. D.T.T. كلام: C.

Cf. R., 137²¹, 138^{6, 14}, 139¹⁵. R., 52⁴.

Sh., II, 79.

C adds: لأن العلم, which seems necessary.

B, C.

Sup., 13 ff.

See R., 52¹¹, Sh., II, 80.

C: adds و

R., 52¹²: حضور. B defines as شهود وجود الحق, which is necessary to the sense.

Cf. Sh., II, 82:

و المعانية قيل غايتها تحقيق احاطة الذات التي لا يصح مع وجودها كون الغير

See sup., 2³⁰.

Sh., ib., verbatim after ريب.

B, C invert: والطريقة والحقيقة; cf. sup., 7⁴.

*Fol. 17a. العبودية بشرط التزامها ويقال هي معرفة السلوك الى الله * تع ١ - و الحقيقة
 مشاهدة الربوبية بالقلب ١ و يقال هي سر معنوي لا حد له ولا جهة و من
 قال باتحادهما اراد اتحادهما صدقاً [لا] ٢ مفهوماً - والطريقة سلوك طريق الشريعة ١
 و هو ٥ اعمال شرعية لها حدود تكون الصلوة ركعتين او ثلاثاً و جهات كونها فرضاً
 ٥ اوتغلاً موقناً وغير موقن و الثلاثة متلازمة لان الطريق الى الله تع [لها] ٤ ظاهر و باطن
 *Fol. 17b. فظاهرها الشريعة * [والطريقة] ٥ و باطنها الحقيقة فبطون الحقيقة في الشريعة
 و الطريقة كبطون الرب في ابنه لا يظفر من اللبن بريدة بدون مخضه فالمراد من
 الثلاثة اقامة العبودية على الوجه المراد من العبد - الفصل الثامن في بيان
 سبب السعادة و الشقاوة - اتفق ٦ المحققون على ان الأفعال ليست بسبب السعادة
 10 و الشقاوة بل هما سابقتان بمشيئة الله تع و ان الأعمال انما هي شعار العبودية
 *Fol. 18a. و تابعة لسابقة ٦ * و اشارة ٩ علينا ومع ذلك اتفقوا على انه تع يثيب و يعاقب عليها
 لانه وعد على صالحها و اوعده على سيئها فهو ينجز و عده و يحقق وعده لانه
 تع صادق و خبره صدق فان قلت اذا لم تؤثر الأعمال فما اثر ٩ الاتكاء 10 عليه تع قلنا
 الاثيان بها واجب على قصد الامثال قال صلعم اعملوا و كل ميسر لما خلق
 *Fol. 18b. له 11 مع انها و ان لم تؤثر * حقيقة اثرت عرفاً و عادة و 12 عملاً بقوله تع تلك الجنة
 التي أورثتموها بما كنتم تعملون 13 و قوله تع جزاء بما كانوا يعملون 14 و قوله
 تع و ما أصابكم من مصيبة فبما كسبت أيديكم 15 و قوله بل طيع الله عليها
 بكفرهم 16 و قوله صلعم من عمل بما علم و رثه الله علم ما لم يعلم و هذا القدر

1 Sh., II, 93.

2 B, C.

3 C: وهي.

4 B, C.

5 B, C.

6 B: اتفقوا C: اتفقوا.

7 B, C: للسابقة, which is probably intended.

8 C: و امارات.

9 A, B: ثم; cf. اثرت, inf. l. 15.

10 B, C: الاتكاء.

11 Mishkāṭ, B. al-īmān bi'l-qadr, Faṣl I, trad. through 'Alī b. Abī Ṭālib.

12: B, C omit —a better reading.

13 Qur., VII, 41.

14 Qur., XXXII, 17.

15 Qur., XLII, 29.

16 Qur., IV, 154.

- *Fol. 19a. كان فيما قصدناه هنا و من اراد التبخر * في هذا العلم فعليه بشرحنا
على رسالة الامام ابي القاسم القشيري رحمه الله تع و نفعنا بعلمه -
الفصل التاسع في بيان الخواطر و هي اربعة - خاطر من الله و خاطر من
الملك و خاطر من النفس و خاطر من الشيطان - فالاول تنبيه ولا يودي
الى حيرة و الثاني حث على الطاعة و الثالث مطالبة الشهوة و الرابع تزيين
المعصية و كلها * في الحقيقة من الله تع غير ان الأول بلا واسطة و البقية
بواسطة¹ و يقال للاول خاطر رباني و للثاني خاطر ملكي و للثالث خاطر نفساني
و للرابع خاطر شيطاني و الفرق بين الاخيرين [ان]² اولهما يكون بالعاج و ثانيهما
بدونه لان النفس اذا طالبت بشئ من شهواتها تحث في طلبه كالطفل اذا اوع
بشئ فلا تزال النفس تلح في طلبها³ ذلك حتى * تصل الى مرادها و الشيطان
اذا دعا الى زلة و زينها للانسان فخالفه ترك تلك الزلة و انتقل الى اخرى ولم
يصمم على زلة معينة اذ لا عرض له في خصوص زلة معينة⁴ انما عرضه الاغواء
بأى طريق كان و حق الاولين القبول و الاخيرين الرد والورع ترك الاقدام على
كل من الاربعة الا باذن الشرع و يقال ايضاً للاول خاطر⁵ و للثاني الهام
و للثالث * هاجس و للرابع وسواس و زاد بعضهم خاطرين آخرين خاطر العقل
و خاطر اليقين⁶ فخاطر العقل متوسط بين الاربعة يكون تارة مع الآخرين
لاثبات الحقيقة على العبد اذ لو فقد لسقط العقاب و تارة مع الاولين ليكون
العبد مختار الفعل⁷ فيستوجب به الثواب و خاطر اليقين روح الايمان و مرید
العلم⁸ - الفصل العاشر في بيان كيفية اخذ العهد * و لبس الخرقة و تلقين
الذكر - اذا اراد الشيخ ان ياخذ العهد على المرید فليطهر و ليأمره⁹ بالنظير من
الحدث و الخبث¹⁰ ليتهدا لقبول ما يليق¹¹ عليه من الشروط في الطريق و يتوجه

¹ Sim. in D.T.T., 416 (الخطرة). ² B, C.

³ طلب: C.

⁴ Ll. 5-9 reproduce almost verbatim al-Junaid's distinction, R., 57 5.9.

⁵ خاطر حق in R., 56 28.

⁶ Sh., II, 99; D.T.T., art. الخطرة

⁷ B, C: مختاراً لفعله

⁸ العقل: C.

⁹ A: وليأمر

¹⁰ B: والنجس C: والجنب

¹¹ B: يلقنه

الى الله تح ويساله القبول لهما ويتوسل اليه في ذلك بمحمد صلعم لأنه
*Fol. 21b. الواسطة بينه تح وبين خلقه و يضع يده اليمنى على يد المرید اليمنى * بان

يضع راحته علي راحته و يقبض ابهامه باصابعه و يقول اعوذ بالله من الشيطان
الرجيم بسم الله الرحمن الرحيم الحمد لله رب العالمين استغفر الله العظيم
5 الذي لا اله الا هو الحي القيوم و اتوب اليه و صالى الله على سيدنا محمد و آله

و صحبه و سلم و يقول المرید بعدة مثل ما قال ثم يقول اللهم اني اشهدك
*Fol. 22a. و اشهد ملائكتك * و انبيائك و رسلك و اوليائك اني قد قبلته و لدأ في الله

فاقبله و اقبل اعليه و كن له و لا تكن عليه ثبته 1 و ايدة ثم يقول له 2 اعاهدك
يا ولدى على ان لا تبشر كبيرة و لا تصر على صغيرة و ان تعمل بكتاب الله

10 و سنة رسوله صلعم و ان تجمع بين الشريعة و الحقيقة فيقول المرید قبلت
*Fol. 22b. ثم يدعو الشيخ لكل منهما و للمسلمين كان يقول في دعائه * اللهم اصلحنا

و اصلح بنا و اهدنا و اهد بنا و ارشدنا و ارشد بنا اللهم ارنا الحق حقاً و الهما
اتباعه و ارنا الباطل باطلاً و ارزقنا اجتنابه اللهم اقطع عنا 8 كل قاطع يقطعنا عنك و لا

تقطعنا عنك و لا تشغلنا بغيرك عنك ثم يقول الله على ما نقول و كيل يد الله فوق
*Fol. 23a. ايديهم فمن نكت فانما ينكت على نفسه و من اوفي بما عاهد * عليه الله

فسيؤتيه اجرًا عظيمًا 4 - و اذا اراد ان يلبسه الخرقة فليطهر و ليامره بالطهر
كما مر ثم توضع الخرقة للمرید بيديهما 5 و يقرأ الفاتحة عليها و يلبسها الشيخ

بيده للمرید قاصداً بذلك النيابة عن الله و رسوله ثم يذكر له نسبتها بان يقول
له البسنني شيخي فلان الخرقة بيده 6 عن شيخه فلان الى آخره و ها أنا البستها 7

لك كما * البسنى ايها شيخي و قس على ذلك البقية بخلاف التوبة و التلقين
*Fol. 23b. فان نسبتها وهي اخذ العهد على 8 تذكر قبلهما - و اذا اراد تلقينه فليطهر

1 C: وثبته

2 C: انما

3 B, C.

4 Qur., XLVIII, 10.

5 B: بيدهما C: يديهما

6 C omits.

7 B: البسها

8 المرید is necessary to complete the sense. B, C omit the explanatory clause from على to وهي.

و لياصرة بالتطهر كما سر و يذكر له النسبة ثم يغرض عينه ¹ و ياصرة بتغميض
 عينه ¹ ويلقنه لا اله الا الله ثلاث مرات ثم يقول المريد مثله ثلاثا ² ثم يقرأ الفاتحة
 و قل هو الله أحد ³ و المعوذتين و يهلل * الله ⁴ ما يشاء و يهديها الشيخ
 الى حضرة النبي صلعم و سائر الانبياء و آكل و سائر الصالحين و المسلمين
 اجمعين - قال ⁵ مولفه تغمد الله بغفرانه و رحمته و اسكنه بعبودية جنته ⁵
 تمت الفتوحات الالهية بحمد الله و عونه نفع الله مؤلفها و كاتبها و قارئها
 و الناظر فيها و جميع المسلمين آمين برحمتك يا ارحم الراحمين *

تمت

Notes.

P. 12, l. 13: *Tasawwuf*: For the origin of this term and *Sūfī*, see R., 9²²⁻²⁹, and Ibn Khaldūn's citation of this passage. De Sacy's *Notices et Extraits*, XII, 294, ff.; R., 164; *Sh.*, IV, 3; 'Awārīf, I, 144.

13—1-2: 'ilm, 'amal are treated at greater length in *Sh.*, I, 69.

2: *tarku'l-'ikhtiyār*: in D.T.T. (art. صوفى), attributed to al-Junaid. *Hifzu ḥawāssika*, etc, in D.T.T., *ib.*, attributed to Abū Bakr ash-Shibli; in *Tadh.* 'Aul., II, 175²⁰, ed. Nicholson, it is ascribed to him but with *dabt.* for *hifz*; see also def. 61 and foot-note, p. 344, JRAS, 1906 (art. *Origin and Develop. of Sufism*, Nicholson). To the definitions here given one more is added in *Sh.* IV, 2: يقال هو الاكباب على العمل و الاعراض عن العالم

The following passage in the 'Awārīf (I, 143) is interesting:—

و اقوال المشايخ في ماهية التصوف تريد على ألف قول و بطول نقلها
 و نذكر ضابطا بجمع جمل معانيها فان الالفاظ وان اختلفت متقاربة المعاني
 فنقول الصوفي هو الذي يكون دائماً للتصفية لا يزال يصفى الاوقات عن شوب

¹ B, C: عينه

² B, C: ثلاث مرات

³ *Qur.*, CXII, 1; for this and the *Ma'ūdhatūn*, see *Mishkātul-Maṣṣūbīh*, Fa'lā'ilu'l-Qur'ān, Faṣl I, trad. of 'Ā'ishah. ⁴ C omits.

⁵ The benedictory conclusion is abbreviated in B; C reads: والحمد لله رب العالمين تمت الرسالة بحمد الله و عونه و حسن توفيقه

الأكدار بتصفية القلب عن شوب النفس و يعينه على هذه التصفية دوام افتقاره الى مولاه فبدوام الافتقار ينقى من الكدر وكلما تحركت النفس و ظهرت بصفه من صفاتها ادركها ببصيرته النافذة و فر منها الى ربه فبدوام تصفيته جمعته و بحركة نفسه تفرقته و كدره فهو قائم بربه على قلبه و قائم بقلبه على نفسه *

13—6: *tajrīdu't-tauhīd*: Abū Yazīd al-Bisṭāmī deprecated diversity of opinion on the part of the 'Ulamā' only in this one point (*R.*, 17-18);—see also ash-Shiblī's reply (*R.*, 178¹; *Tadh. 'Awl.*, 175¹¹)

14—2: 'an/ās: ... وقالوا الفضل العبادات

عد الانفس مع الله (*R.*, 56¹⁸⁻¹⁶)

3-6: On the relative difficulty of fulfilment of prescribed religious observances and of reformation of character. see *R.*, 64²¹⁻²³.

17—7-8: This *bayt* (see *sup.*, 2, 5) is attributed in the 'Awāriḥ (IV, 242; *sup.* p. 5) to Sumnūn, presumably Sumnūn b. Ḥamzah, a pupil of as-Sarī as-Saqāṭī (d. 257); he died before al-Junaid (d. 297). 'Umar b. 'Abd'l-'Azīz died 101 A.H. According to the 'Awāriḥ the context is:

| | |
|---|---|
| تَجَرَّعْتُ مِنْ حَالِيهِ نَعْمَى ١ وَ أَبْوْ مَسَّ ٢ | زَمَا نَا ٣ إِذَا أَجْرَى عَزَالِيهِ احْتَسَى ٤ |
| فَكَمْ غَمْرَةً قَدْ جَرَعْتُ كَوْسَهَا | فَجَرَعْتُهَا مِنْ بَحْرِ صَبْرِي أَكْوَسَا ٥ |
| تَدَرَّعْتُ صَبْرِي وَ التَّحَفْتُ صُرُوفَهُ | و قُلْتُ لِنَفْسِي الصَّبْرُ أَوْ فَاغْلِبْكَ أَسَى ٦ |
| خُطْبُ لَوْنِ الشَّمِّ زَاخَمِينَ خُطْبَهَا | لَسَاخَتْ وَلَمْ تُدْرِكْ لَهَا الْكَفَّ مَلَمَسَا ٧ |

17—14: *riḍā*: in regard to the classification of this Zakariyā's attitude is not stated, but he probably inclined to the compromise al-Qushairī sought to arrive at between the opinion of the Khurāsānī Sūfis that it is a *maqām*, and that of the Irāqīs that it is a *hāl*, by making its initial stage attainable by effort, and its ultimate an act of God's grace (*R.*, 116¹¹). In explication of Abū 'Alī ad-Daqqāq's definition of *riḍā* (*R.*, 116¹⁶), Zakariyā' likens the Sūfī's submission to what God has ordained to that of the patient who accepts a bitter draught

¹ انعمأ ed. Būlāq, 1289, IV, 288; Br. Mus. MS. Or. 8260, fol. 121a.

² Būlāq, 1289 ed.: زمان.

³ *ib* احتسا: Or. 8260: جري عزاليه اوجسا.

⁴ Būlāq 1289 ed.: اوفى لك أسا.

و تقريبه ان الطبيب اذا سقى العليل مرّاً من
الادوية فهو يجد مرارته ويتألم لشربه الا انه راض بشربه محبّ له لما يرجوه
من العافية وثوقاً بعلم الطبيب (Sh., III, 101)

18—11: 'imān: for the definition of this and al-'islām, see
R., 113-4; *Mishkāṭ*, K. al-'imān; also Abū 'Abdī'l-lāh b.
Khafī's def. of 'imān (R., 519-20).

18—12: Darūrah: بالضرورة لا يخرج ما لا يعلم بالضرورة
كالاجتهادات فان منكرها ليس بكافر (D.T.T., art. 'imān, 94²⁻⁷)

20—4-6: The expression 'ilmu'l-yaqīn occurs in *Qur.*,
102⁵; 'aynu'l-yaqīn in *Qur.*, 102⁷; and haqqu'l-yaqīn in *Qur.*,
56⁹⁵, as Zakariyā' mentions (Sh., II, 100¹⁻²).

21—8: Kashf: according to Sh., II, 79: ... وهو إزالة الستر
الحسي واستنشاق الاسرار الالهية من وراء الحجب البشرية

23—1-3: Sa'ādah, Shaqāwah: Zakariyā thus comments
on the passage, in R., 177²:

(و ان الحسنات) والخبرات الواقعة في الدنيا (لا تغير الاقسام) الزلية
(من الشقاوة والسعادة) فحق العبد ان لا يسكن الى اعماله التي رتب عليها
الشرع الثواب خوفاً من ان يكون قد سبق في علم الله ما يحبطها فحقه ان يكون
في حال علمه خائفاً مما سبق له فانه لا يأمن مكر الله الا القوم الخاسرون
(Sh., IV, 46.)

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NUMISMATIC SUPPLEMENT No. XXXVIII.

ARTICLES 247-248.

*Continued from "Journal and Proceedings," Vol. XIX,
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247. OBSERVATIONS UPON THE COINAGE STRUCK FOR THE BRITISH EAST INDIA COMPANY'S SETTLEMENT OF PENANG OR PRINCE OF WALES' ISLAND (1786 TO 1828).

It has been, at a liberal estimate, only during the last fifty years that the coins of the British overseas possessions have established a popularity amongst collectors. As a result of this interest their value has greatly advanced. Although unable to claim any marked beauty of design, the coinage specially minted for the little Island of Penang has well shared in this general appreciation. These issues were spread over but a short period (1786 to 1828) and the quantities of the earlier coins struck were, so far as is known, very small. Pulau Pinang (in the Malay language the word "Pulau" means "Island" and "Pinang" is the name for the Areca-nut palm) was the first British settlement in the Malay Peninsula. It is but 15 miles long and 9 broad, with an area of 108 square miles, and is situated in 5° N. Latitude off and quite close to the west coast of the mainland, at the entrance to the Straits of Malacca.

Uninhabited then, except by a few fisherfolk, and covered with a dense growth of tropical forest, it was ceded in the year 1786 by the Rajah of Kedah (whose domain lay on the adjacent Peninsula) to the British East India Company. The cession was arranged through the instrumentality of one Captain Francis Light, who had been the Company's representative in the State of Kedah, with which country the Company had long maintained commercial relations. To the Rajah as payment an annual subsidy of 6,000 dollars was promised.

The establishment of this new Settlement (of which Light was appointed the first Administrator) was one of the moves in the long protracted struggle for trade supremacy in the East waged between the British and Dutch.

The highest, and, as it seems now, over-sanguine, hopes were entertained of the venture. The name of "Prince of Wales' Island" was bestowed upon the place in honour of the then holder of that title: the site of the capital was called "George Town": an extensive and expensive civil and military administration was set on foot and, in 1805, Penang

(with which had in 1800 been incorporated a strip of the opposite littoral and which, subsequently enlarged, was designated "Province Wellesley") was raised to the dignity of becoming a separate Indian Presidency equal in rank to those of Bombay or Madras. But, although a large business was done with Sumatra and the Malay Peninsula and a considerable trade further afield with the Celebes, Borneo, Siam, China and other places not under the excluding control of the Dutch, the result was not, for various reasons, ultimately altogether entirely favourable. The exigencies of the confused and shifting political situation in Europe made deep impressions even in these distant lands: the handing over to the Netherlands of the British interests in Sumatra as an exchange for the already moribund Malacca; the return of Java to the Dutch and the foundation by the famous Stamford Raffles in 1819 of the—at once successful—settlement of Singapore soon set the seal on Penang's most palmy days.

In 1825 the three posts (Penang, Malacca and Singapore) were administratively amalgamated and, although the seat of Government was then retained in the old locality, about ten years later, headquarters were transferred to the more prosperous and populous southernmost settlement.

The Straits Settlements remained under the control of India until 1867, in which year they were passed over to that of the Secretary of State for the Colonies.

It may well be wondered, as a result of merely casual consideration, why it should have been thought desirable by the Company to issue special coinage for its new Settlement; particularly in view of the fact that for many years that body had kept up stations in the Malay Archipelago (from which it had traded) without finding it necessary to mint any currency peculiarly appropriate to such neighbourhoods: and it is, perhaps, requisite in order to try to understand the apparently feeble—and as it turned out certainly ineffective—efforts made by the Company to introduce new coins for or from Penang, to appreciate properly several factors which are not superficially at once noticeable. In the first place there was no such thing as free commerce: both the great British and Dutch East India Companies enjoyed from their respective Governments in Europe exclusive rights: so far from countenancing trade by a rival nation in any place in which it purported to exercise its privileges, each Company protected its monopoly by prohibiting any business except by its own duly accredited agents.

Whilst the former had primarily been devoting its energies to the consolidation of its position in India, the latter had exploited the rich areas further to the south and east: and when the British, secure in their hold in Hindustan, began to contemplate paying more vigorous attention to the Archi-

pelago, they found there firmly established in many of the choicest centres the Dutch fortresses and an elaborate Dutch currency of both local and European manufacture. Against the familiarity of the Dutch copper Doit and silver Stiver pieces of low denomination, the British had nothing to match except their own Indian coins, which bore no direct relation to the Spanish Dollar, which was recognized as the principal basis of commercial transactions in every part of Malaya not under direct Dutch influence.

In those places where trade was more or less free from monopolistic restriction almost any coin circulated for commercial purposes, and a bewildering medley of monies of different intrinsic and often of varying exchange value was more or less current; for the volume of business was great and the demand for metallic currency of low denomination never equalled by the supply. In order to foster its transactions, the Treasuries of the British Company were, no doubt with great reluctance, compelled to accept and use this heterogeneous mixture, but the loss occasioned by its conversion for transmission to India or England was very serious. For years, both before and after the end of the 18th century, the Company strove to oust the foreign Dollar and the Doit and to introduce its Rupee and copper coinage; but all these efforts completely failed: the Dutch Guilder and Doits and the silver Dollar were the Europeans' pieces with which the indigenous races of Malaya had been first acquainted, and to which they had become accustomed, and to them with Oriental conservatism they firmly clung.

It would be easy, but outside the purview of this paper, to amplify greatly the foregoing remarks, and they must be concluded with the suggestion that the student of general history must be aware that the period under consideration (1786-1828) was one which witnessed the break up of the Dutch East India Company, the subjugation by Napoleon of almost the whole of Europe, the formation of the Batavian Republic, the capture by the British of Java from the French and its return to the Hollanders, and the incessant, and, though constantly hampered, victorious efforts of Raffles to acquire ascendancy for his country over the Malay Peninsula.

Coming then more closely to the position of the coinage for trade purposes as it presented itself to the Penang officials, the bald facts stood evident, that the silver Dollar was the basis of the commercial transaction, that the Company had no coins of lesser value bearing to the Dollar any simple relation and that, to carry on trade satisfactorily, it had to utilize (and realize at a great loss) such widely different materials as Guilders and Stivers, Doits and Ducats, Chinese Cash, gold and silver Rupees of Batavia, many kinds of Dollars and even American Eagles. The Company, however,

made use, so far as it could, of its own numerous forms of Indian Rupees and copper money.

That the Dutch, too, had their currency problems may be realized from a table of values extracted from "The Almanack for the Netherlands Indies for the year 1817" and quoted by Millies (pp. 73 and 74) part of which reads thus:—

| | |
|-----------------------|---|
| 4 doits | = 1 stiver. |
| 10 " | = 1 dubbeltje. |
| 30 " | = 1 schelling. |
| 60 " | = $\frac{1}{2}$ rupee of Batavia, Surat or Arcot. |
| 63 " | = $\frac{1}{2}$ Sicca rupee. |
| 120 " | = 1 rupee of Batavia, Surat or Arcot. |
| 126 " | = 1 Sicca rupee. |
| 132 " | = $\frac{1}{2}$ Spanish dollar. |
| 160 " | = $\frac{1}{2}$ ducatoon. |
| 192 " | = 1 riksdollar. |
| 240 " | = 1 American or Austrian dollar. |
| 264 " | = 1 Spanish dollar. |
| 312 " | = 1 old ducatoon. |
| 320 " | = 1 new ducatoon. |
| 528 " | = 1 gold ducat. |
| 960 " | = $\frac{1}{2}$ gold rupee. |
| 1920 " | = 1 gold rupee. |
| 10 Spanish dollars | = 1 American gold eagle. |
| 16 " | = 1 doubloon. |
| 16 Silver Java rupees | = 1 gold Java rupee. |

Captain Light lost no time in pointing out to his superiors in Bengal the unsatisfactory nature of the currency position. He deplored particularly the want of silver coins of lower denomination than the dollar and, from what he wrote, he clearly contemplated that the coinage which he required was to consist of equivalents of fractional parts of that coin. He suggested silver pieces of the value of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{10}$ th, and copper pieces worth respectively $\frac{1}{100}$ th, $\frac{1}{200}$ th and $\frac{1}{400}$ th of the Spanish dollar.

By the year 1788 he had already met with some response, for in a letter dated the 20th June of that year he writes to the Governor-General of Bengal, stating that, though the piece of $\frac{1}{10}$ th of a dollar had been such a success that he wished for a further issue to the value of 5,000 rupees, yet the $\frac{1}{2}$ and $\frac{1}{4}$ dollar pieces which he had received showed little sign of being put into use.

The text of this letter which is given in the *Journal of the Indian Archipelago*, Vol. IV, 1850, p. 647, reads:

"I have been honoured with Your Lordship's letter of the 21st March, and have received the silver coin struck off for the use of this settlement, together with the mint-master's letter of 27th December, 1787, relative to it.

"The silver coin of ten to a dollar is the most useful—a further supply is required to the amount of five thousand rupees value. The quarter dollars and half dollars are not yet come into much use, therefore I cannot determine what quantity may be demanded in future, but at present there appears to be enough in store to last a considerable time."

Light in this letter is presumably referring to the silver coins of the values mentioned which are dated 1787: these are all known to Numismatists but appear to be of the utmost rarity.

There was a second issue of similar coins dated 1788 and of these the 1/10th Dollar piece is by far most frequently met with; though even that is but seldom seen.

Although so clearly spoken of as fractions of the Dollar, these coins present, in common with the whole series issued for Penang, the remarkable peculiarity of having on them nothing whatever either in words or figures to indicate what denomination of value they purported to represent. Millies was careful to avoid nomenclature, but Atkins, possibly because of the fact that 2 Sicca Rupees were roughly reckoned as the equivalent of 1 Spanish Dollar (though actually they were rather less in value), calls the $\frac{1}{2}$ Dollar a Rupee, the $\frac{1}{4}$ Dollar a Half-Rupee, the 1/10 Dollar a Quarter-Rupee, the largest copper piece a Cent, the intermediate sized copper piece a Half-Cent and the smallest copper piece a Quarter-Cent: and these designations have usually been adopted by others. It may be, perhaps, pointed out that, although it may not be convenient now to revert to more correct names for these coins, Atkins' nomenclature was apparently incorrect. Howorth (p. 33) aptly draws attention to this misnomer and, in writing of the coinage of the Straits Settlements, remarks: "The early acceptance of the Spanish (or Mexican) dollar in Oriental trade has already been mentioned and it is further confirmed by the use in these States of coins which are divisions of this cosmopolitan medium of trade. Even the earliest coins are usually denominated cents, etc., although they preceded the adoption in the United States of a decimal system with the dollar for standard: and they may possibly have been multiples of the 'Cash'. It may be noted that the decimal system was adopted in the United States in 1786 and 1792. The silver pieces, therefore, undoubtedly should be properly designated as $\frac{1}{2}$, $\frac{1}{4}$, and 1/10th of a Dollar. As for the copper coins (which in England and in India were usually spoken of by the generic name of "Pice" indicating generally copper currency, much in the same way as one speaks now-a-days of "coppers") the non-Dutch copper currency was reckoned in "Kepings" of which 400 went to the Dollar. The Dutch did not adopt a Cent currency for their East Indian possessions

until their issue in 1833: whilst the Indian Government, which for Sumatra minted 4, 3, 2 and 1 Keping coins up to the year 1804, only commenced a proper Cent currency for the Straits Settlements in 1845. Neither amongst the numerous issues of copper tokens by the British merchants in Penang and Singapore from 1804 to 1840, nor in the extensive mintage by Raffles from 1811 to 1816, when Java was under British rule, does a single coin of Cent—so designated—denomination occur: they are all Keping, Stiver or Doit. I think, therefore, that it is probable that, though bearing a definite decimal relation to the Spanish Dollar, the three denominations of copper coins issued in 1786 and 1787 would most properly be designated as 4 (though their weight is equivalent more to 3), 2 and 1 Keping pieces, or possibly, in familiar terms, as Pice, Half-Pice and Quarter-Pice. Thurston (1893) mentions that all the records of the Calcutta mint for the period 1760 to 1792 have been lost: and this fact accounts for the uncertainty and lack of particulars obtainable with regard to the 1786-88 issues for Penang.

One must certainly regard the issues of silver in 1787 for Penang as of a very experimental character: what number of these coins were minted I have not been able to ascertain; but it was without doubt exceedingly small and they are, as I have mentioned, of very great rarity. The silver issued in 1788 disappeared almost immediately (vide Jour. Ind. Arch, Vol. IV, 1850, p. 649). As for the copper money of 1786 and 1787, all that I have as yet been able to discover is that in 1787 Mr. Herbert Harris, the master of the Calcutta Mint, applied to the Government of Bengal for an advance of 2,000 Sicca Rupees, to meet the expenses of setting up the machines for and the cost of coining copper money for the Prince of Wales' Island, i.e., Penang (Offg. Keeper of Records of the Government of India: in lit. 10-7-22). In the Imperial Record Department at Calcutta there exists a letter dated December 12th, 1787, addressed to Mr. Herbert Harris, the Mint Master, which reads as follows:

"Sir,

"Having stated to the Governor-General-in-Council the
"Information which you communicated to me regarding the
"Copper Coin remaining to be sent to Prince of Wales Island
"of the Quantity prepared last year, I am directed to acquaint
"you that you are to embark it in the 'Speedwell' and to
"settle the Terms of Freight with the Commander Captn.
"Fearse.

"I am, etc.

"E. HAY,

"Secretary to the Government."

The so-called Cents (of which there are three very different types) and Half-Cents (of which there are two forms)

went into circulation and some varieties are not uncommon in poor condition: but the Quarter-Cent (1 Keping) was so extremely small as to be useless for practical purposes and it is a rare coin. The currency position was little improved by these small tentative issues: indeed, as, intrinsically, they were of excellent metallic value, they were, in accordance with the well-known economic law, rapidly pushed out of circulation by the inferior coinage which it had been hoped they might replace: attempts made prior to 1800 to prohibit this process by a regulation interdicting the introduction into the Island of copper coinage of lower intrinsic value were, as might have been anticipated, futile.

In a letter dated May 10th, 1800, Sir George Leith, the then Lieutenant-Governor of the Island, writes:—"On the 'Union', Captain Burgh, which sailed on the 27th April, I sent to the Resident of Bencoolen copper pice to the amount of Spanish dollars 500, which were not current here. Some years ago the Superintendent found it necessary to prohibit all copper money from passing in the bazar that was not coined for the Island, it having been discovered that the pice of Bombay and Bencoolen had been imported to considerable amount, which though 50 per cent less in value, passed current on the Island, so that in a few months the copper of the Island was carried off, and none current but that of inferior value: this was the occasion of having so large a quantity of Bencoolen pice in the Treasury. It being useless here I judged it better to send it to the Resident of Bencoolen, requesting him to give credit for the amount to the Bengal Presidency; it has been written off the books of the Establishment" (vide *Journ Ind. Arch.*, Vol. V, 1851, pp. 161 and 162): and Millies (p. 98) remarks that, after these issues of 1787 and 1788 had shown themselves to be of little practical use, the gold and silver (and presumably copper) coins of British India were freely admitted into currency in the Straits Settlements. Sir George Leith's period of office closed with the year 1803 when he was relieved by Mr. R. T. Farquhar. This gentleman held large and somewhat grandiose ideas regarding the development of the Settlement and, in one of certain Appendices to a Report on his administration of the Island which was prepared by him and submitted to the new form of Government, by which he was superseded in 1805, he writes with regard to the coinage as follows:

"Copper Coins.

"I propose 50,000 rupees worth of such size as to have:—

"Rupees 25,000 of cents. . . . 4,000 whole pice from a maund
"of copper;

“ Rupees 20,000 of $\frac{1}{2}$ cents....8,000 of half pice from a
“ maund of copper ; and

“ Rupees 5,000 of $\frac{1}{4}$ cents....40,000 of these, 10 pice to
“ one large :

“ the design of the coin as heretofore circulated at Prince
“ of Wales’ Island.

“ The Company will gain on the issue upwards of 50 per
“ cent, even at the present high rate of copper.

“ Small Silver Coins (doubtful).

“ Rupees 25,000 of Cupangs....10 Cupangs to a dollar
20 half Cupangs to a dollar.

“ These may also amount to 50,000 rupees : in design
“ precisely like the pice ; the alloy may be 25 per cent copper,
“ which will be all gain, as the coinage is the Company’s :
“ but there may be objections, which I am not fully aware
“ of, to depreciating the silver and which may render it
“ inexpedient to establish the coin.”

[NOTE.—Mr. Farquhar is here, I think, using the word
“ Cupang ” merely to signify a fractional piece of money.
J. A. B.]

“ Gold Coin.

“ Any quantum. 1 gold dollar equal to 10 silver dollars.

“ $\frac{1}{2}$ gold dollar equal to 5 silver dollars.

“ $\frac{1}{4}$ gold dollar equal to 2 $\frac{3}{4}$ silver dollars.

“ As these may be used in merchandize their fineness must
“ quadrate with the exchange ; and, as gold is cheap here,
“ the saving of 15 per cent will be made by having the mint
“ and dyes here.

“ The more our copper and silver coins (if the latter be
“ established at all) are caried away, the greater will be
“ our gain from the supply. Copper is now dear ; but, when
“ it falls to 40 and 45 rupees per maund, there will be a gain
“ of more than one-half.

“ The coinage of pice and doublekies or cupangs has been
“ a great source of revenue to the Dutch Company. They
“ gain nearly 100 per cent on the issue, and, if we can spend
“ annually one lakh of rupees, we should in like manner
“ make a very considerable increase to our revenue.

“ The design of the gold coins may follow that of the
“ copper and silver ; excepting that they must be milled at the
“ edges.

“ If the Government be authorized to establish a mint at
“ Prince of Wales’ Island, I am convinced it would yield a
“ revenue, from the Company’s and private coinage, of from
“ 20 to 30,000 dollars per annum ; besides paying the expense
“ which is trifling. Assays and one or two artists may be
“ procured at Calcutta.

"As every coinage will yield revenue, no means are necessary to prevent export so long as we keep pace with the circulation by coinage without overloading the market with any one coin.

"I should think it advisable to rent the exchange of all coins in the bazar and fix the discount; which will always prevent any depreciation of value, and yield a surplus revenue to government." (Vide Jour. Ind. Arch., Vol. V, 1850, pp. 418-19.)

Farquhar's actual proposals do not seem to have met with a cordial reception although the currency difficulties continued to form the subject of constant discussion: but nothing effective was done for some years.

About 1804, merchants in Penang, unable to obtain any adequate supply of small copper currency, commenced in despair to issue their own tokens: these were minted in England: their example was followed latter by Singapore traders; but the series has no direct concern with the coins of Penang and is usually referred to as that of "Malayan Merchants' Tokens."

In September, 1805, the Instructions framed for the new system of administration of Penang arrived in the Island from England, Mr. Dundas was the Governor and in paragraph 61 of the despatch from the Court of Directors establishing the Government, they write:—

"Coinage.

"We are not sufficiently acquainted with the coins current to give any directions upon this subject. The dollar we understand is the principal current coin and we have reason to believe that the introduction of a copper coinage, of various denominations, would be of much public advantage. We wish to receive your opinion upon this subject, that we may take measures accordingly. A gradual division of coin, from the dollar to the pice, would be of singular convenience to the inhabitants; you will acquaint us whether you think it advisable that we should provide copper coins for the use of your island and of what value and description." (Vide Jour. Ind. Arch., Vol. VI, 1852, p. 29.)

In his reply, dated the 12th November, 1805, Mr. Dundas remarked:—

"Coinage.

"74. The only coins at present in circulation are the Spanish dollar and a pice of tin, 100 of which are equal to a dollar. On the best enquiry, it appears that—

"a silver coin of 50 pice,

"Ditto of.....20 pice,

"Ditto of.....12½ pice,

“ which ought to be of 10 per cent. more alloy than the
“ dollar, would be highly convenient for the internal use of
“ the island. The introduction of the alloy is recommended
“ to meet the expense of the coinage and to obviate the
“ exportation of the coin as bullion.

“ 75. We earnestly recommend to your Hon'ble Court
“ that a sum to the amount of £15,000 be sent out in such
“ coin for this island, which we are convinced would much
“ benefit the inhabitants in reducing the price of the smaller
“ articles of consumption without loss to the Hon'ble
“ Company.

“ 76. In addition to the above, a small copper coin may
“ easily be made on the island sufficient for the general use,
“ to which it can be applied without the Hon'ble Company
“ being at any expense thereby. (Vide Jour. Ind. Arch.,
“ Vol. VI, 1852, p. 90.)”

With Mr. Farquhar's suggestions the new Governor in a
later despatch (as one from himself in Council), under date
February 28th, 1806, dealt very summarily : it reads :—

“ 9th Coinage ; agreeably to a note on the subject by the
“ late Lieutenant-Governor.

“ Sicca rupees 50,000.

“ 23. On this subject, the 74th, 75th and 76th paragraphs
“ of the general letter to the Hon'ble Court of Directors,
“ under date the 12th November last, are sufficiently
“ explanatory of our opinion, and are consequently sub-
“ joined in Appendix No. 12, from which it will appear, that
“ any resources the Lieutenant-Governor might have cal-
“ culated upon, by establishing a Mint at Prince of Wales'
“ Island, are in a great measure done away with, except in
“ the coinage of copper, which we intend to bring to the
“ test of experiment, so soon as a sufficient supply of the
“ material can be procured.

“ Thus much we have thought it necessary to remark on
“ such parts of Mr. Farquhar's report and appendix, as
“ contain particular statements or where we have been
“ enabled to reduce to some one point or other his observa-
“ tions, which are for the most part too general and specula-
“ tive, either to be strengthened or confuted by the test of
“ calculation upon fixed or even feasible principles.” (Vide
“ Jour. Ind. Arch., Vol. V, 1851, p. 427.)

The Directors of the Company do not seem to have
approved of the idea of minting any silver coins specially for the
Island and, so far as I can gather, the coining of any such
gold currency was never seriously considered. It seems clear,
from later documentary evidence, that the Court of Directors
was determined, contrary to the advice of their represen-

tatives in Malaya (who knew full well how firmly rooted was the Silver Dollar), to establish the India Rupees as the Company's silver currency: an effort which, although sustained for over a quarter of a century, ended in complete failure. With regard, however, to copper coinage and stimulated, perhaps, by the immense numbers of copper tokens issued without Government permission by the merchants of the Island, the Directors, apparently in 1809, approached the Royal Mint in London, asking that 25 tons of copper might be used there for coining bronze currency for Penang: this request was referred to the Lords of the Committee of Council for Coin. The resolution of the Coin Committee of the Privy Council, was, according to Ruding (*Annals*, Vol. II, p. 106), passed on April 16th, 1810, and was to the effect that 25 tons of copper coins should be executed for Penang and they were accordingly struck at the Mint. Their Lordships' authority sanctioning the proposal was conveyed to the Master of the Royal Mint by a letter, dated April 17th, 1810.

An old manuscript book at the Royal Mint at London shows that pieces designated as Pice and Half-Pice were struck: the weight of the Pice piece was at the rate of 48 to the avoirdupois pound: 17 tons of Pice (i.e. 1,827,840 pieces) and 8 tons of Half-Pice (i.e. 1,720,320 pieces) were minted. The Royal Mint on Tower Hill in London had been supplied in 1805 with his new patented steam-driven coining-presses by the famous Matthew Boulton of the Soho Mint, Birmingham, who, incidentally, had minted the tokens for the Penang merchants: it was said that a single engine could turn out from 30,000 to 40,000 coins in one hour. The design adopted was one chosen from several patterns (which are of great rarity) and was of artistic appearance and excellent workmanship: a vast contrast to the somewhat crude and clumsy issues of 1786 and 1787.

I am indebted to Colonel R. A. Johnson, C.B.E., Deputy Master of the Royal Mint, London, for much of the information given above with regard to this Penang issue of 1810.

That year was notable in the history of the Island, as in December it was visited by Lord Minto, the Governor General of India, on his way to Malacca where 6,000 British and 6,000 Indian troops were concentrated for the invasion of Java, the capture of which from the French (and Dutch) was effected in the succeeding year.

No further coinage was issued for the Island for some years but, in March 1824, Malacca, which had since 1818 been in the hands of the Dutch, was (for the third time in thirty years!) again transferred to British rule; this time in exchange for the British Settlements in Sumatra (a poor bargain for Great Britain) and was in the following year amalgamated with Penang and Singapore into a single Presidency. In 1824

appeared a pattern of a piece of the denomination of one-third of a Cent designed for, but never adopted by the British East India Company: it is of the highest rarity and was no doubt intended for use (had it been accepted for currency) in all the newly linked Settlements. It did not bear the name of any place and was, probably, for that or other reasons rejected but it carried the value in English, Persian, Chinese and Malay character.

No clear information has, so far as I know, yet been published with regard to the production of this pattern: but in the Imperial Record Department, Calcutta, there has, as the result of the searches there undertaken on my behalf, been found a letter, dated 14th February, 1824, addressed by Mr. Crawford, the Resident of Singapore, to the Secretary to the Government of Bengal, the material portions of which read as follows:

"6. In keeping accounts the Spanish Dollar will be most convenient, divided into cents or hundredth parts, but it does not seem necessary that there should exist any actual Coin of this Value. As a Spanish Dollar will contain 300 copper coins—each of the latter will constitute $\frac{1}{3}$ of a cent, and I think, may be conveniently so denominated. The silver coin will consist of 10 of the Copper Coins and 30 will be equivalent to one Spanish Dollar.

"7. With respect to the inscription, it should be the same on both coins. On one side, may be inscribed the value of the coin in the English, Chinese, Malay, and Bugeis Languages, and on the reverse may be inserted the crest of the East India Company, without the arms or supporters, which are not only too large for the coin, but what is of more consequence bear no resemblance to the devices on the coins assumed as models, and to which habit has rendered the native partial. Under the Company's arms, may be inserted the date, in which the coins are struck, and perhaps the motto of the East India Company's arms may find room without inconvenience. Enclosed I have the honor to forward sketches of such inscriptions, as I now venture to recommend. The characters may be written either diagonally or horizontal as may be found best, but I should conceive the first preferable."

I have no knowledge as to where this pattern was minted except that it was not produced at the Royal Mint, London (Deputy Master, in lit. 17-12-23,) and, as a matter of comment, it could hardly, properly, be regarded as a coin having in fact or in design any special attribution to Penang. [Since writing the above I have ascertained that the dies for this

coin were made at the Calcutta Mint, where they still exist : some sample coins were struck and sent to Singapore.]

At any rate, no further results seems to have emerged from Mr. Crawford's letter of 14th February, 1824, but in 1825 a new series of copper coins of the value of 1/50th, 1/100th and 1/200th of a Dollar (or Double, Single and Half Pice), made its appearance.

They are of design generally similar (except in size, value and date) to that of the 1810 issue. They were not minted at the Royal Mint, London, but at Madras.

Thurston (pp. 57 and 58) makes some observations upon and quotes two letters which refer to this 1825 issue. The first is dated April, 9th, 1825, and is from the Acting Secretary to Government, Fort Cornwallis (i.e. Penang), to the Secretary to Government, Fort St. William (i.e. Calcutta). It reads thus :—

“ Sir,

“ The copper coin sent out by the Honourable Court of Directors [this no doubt refers to the 1810 issue. J. A. B.] “ having been all issued from the treasury, and great “ inconvenience being likely to arise before a supply can be “ received from England, I am directed to forward specimens “ of the coins in use, the pice and half pice, in the hope “ that it may be found practicable to manufacture the same “ at the mint in Calcutta. These coins are issued, the “ first at 100, the second at 200 to the dollar, and pass “ at Singapore, and all over the Malay Peninsula, where “ they are much sought after. A coinage of a double pye, “ 50 to the dollar, bearing the same stamp, would also be “ convenient, should the measure be found practicable, and “ not attended with inconvenience. The transmission of “ the above coin to the amount of 10,000 dollars in value “ would prove extremely useful to the general condition of “ the island.

“ I have, etc. etc.

“ E. I. BLUNDELL.”

The second is dated June 9th, 1825, and is addressed to the Secretary to Government, Fort St. William, from the Secretary to Government, Fort St. George (i.e. Madras) : it runs :—

“ Sir,

“ I am directed by the Right Honourable the Governor-General-in-Council to transmit to you the accompanying “ copy of correspondence relative to the supply of copper “ coinage required by the Penang Government, and to “ request that the Honourable the Governor-in-Council will “ be pleased to cause the coinage in question to be prepared

“at Fort St. George, if practicable, and transmitted to
“Penang.

“2. Specimens of coins are herewith transmitted.

“I have the honour to be,

“Sir,

“Your most obedient servant,

“HOLT MACKENZIE.”

Thurston adds :—

“The mint records show that, in consequence of this
“correspondence, new punches and dies were made, and
“130,300 double pice, 136,700 single pice and 145,000 half
“pice struck for the Penang Government.”

They are not rare. They bear on the reverse in Arabic script “Pulau Pinang” (i.e. Malay for “Island Penang”).

In 1828 there were further important administrative changes in the Island as a result of a visit thereto in 1827 of Lord William Bentinck (at that time Governor-General of India), who reduced most materially both the Military and Civil establishments : indeed, in 1829, the Straits Settlements ceased to be an independent Presidency and were placed under the control of the Government of Bengal. At any rate, in 1828 appeared the final issue of Penang coinage : it was similar (save for date) in design and denominations to that of 1825 and was probably also minted at Madras, was somewhat coarsely executed and seems to me to be made of a rather soft and easily abraded metal.

With the issue of 1828 the Penang series ends and it was not until 1845, after every effort to force upon a protesting community its inappropriate Rupee and Anna currency had failed, that the British East India Company, reluctantly accepting the Dollar standard, began to coin, for the Straits Settlements as a whole, Cents, Half-Cents and Quarter Cents. These, the similar succeeding issue of 1862 and the later long lines of silver and bronze issued under the Colonial Office Administration constitute another—the Straits Settlements—series and do not form any part of the subject matter of the present observations.

The following is a short descriptive account of the Penang issues. There is no actually unpublished piece mentioned, as reference to them all can be collected from the joint pages of Ruding, Millies, Atkins or Howorth. The diameters and weights given are those of the best preserved specimens in my own collection.

1786 (?)

Copper.

1. *One Cent.* Diam., 29 mill. Weight, 231.1 grs. Plain edge. Probably struck at Calcutta. Plate I, 1.

Obverse.—Within a plain line circle, the Bale-mark (i.e. Trade-mark) of the British East India Company. This, here, consists of a heart-shaped shield, surmounted by the figure 4, within which are the letters *V* (at top), *E* (at left, railed off by a plain semi-circular line), *I* (at right, similarly enclosed) and *C* (at bottom). The letters are the initials of the United East India Company.

Reverse.—Blank.

NOTE.—There is neither legend nor date on this rather rough piece, but Atkins attributes it to Penang and Howorth gives it the date 1786; though the Island was only actually annexed on August 11th of that year. It is possible (see Mr. Hay's letter quoted above) that Captain Light took part of this money with him when he went to assume possession of the place. I have, however, at present, been unable to obtain any definite information about this coin either from the Indian Mints or the Indian Imperial Record Department; but it may be taken as fairly certain that it was struck in or near Calcutta, where a mint was established in 1757. The coin must, I think, have been turned out in considerable quantity as it is not rare though very seldom found in first class condition. I had several worn specimens brought to me on my periodic visits to Penang during 1914–20. Fair examples can be bought in London for from 1s. to 2s. It is Atkins' No. 7, p. 206; vide Howorth, p. 33.

1787.

Silver.

2. *Half-Dollar.* Diam., 32 mill. (?). Plain edge.

Obverse.—Within a circle of strokes close to the edge, the Bale mark of the Company: date thus "J787" below; a five-pointed star between the centre figures.

Reverse.—Within a circle of strokes close to the edge, an inscription in Arabic script; reading, according to Millies' description of No. 6, "Djezirah Perrinsa ab-Wallis," i.e. "Island Prince of Wales": "a truly barbarous phonetic transliteration," says that learned numismatist.

NOTE.—This is the so called "Rupée" of Atkins. It seems clear from Captain Light's letter (quoted above) of June 20th, 1788, to the Governor-General of Bengal that these $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{10}$ th, Dollar silver pieces both of 1787 and 1788 were coined at the Company's Mint in Calcutta. The issue of 1787

must, I think, have been a very small one, as all of the three denominations seem extremely rare: no specimens of this issue are in the cabinets of the British Museum or the Indian Museum, Calcutta, and none appeared in the sales of such well known Colonial collections as those of Messrs. Montagu (1892), Cholmley (1902), Lt.-Col. Leslie Ellis (1902), Murdoch (1913) or Caldecott (1912). Value probably £10. Neither of the two silver issues (i.e. of 1787 or 1788) is mentioned by Ruding.

This coin is Atkins' No. 1, p. 205: vide Howorth, p. 33.

3. *Quarter-Dollar.* Diam., 24 mill. (?). Plain edge. Similar to the Half-Dollar piece save for size.

NOTE.—Value probably £5. This coin is Atkins' "Half-Rupee," No. 2, p. 205: vide Howorth, p. 33.

4. *One-Tenth Dollar.* Diam., 17 mill. (?). Plain edge. Similar generally to the Quarter-Dollar save for size, but on the *Reverse* the inscription is shortened and, according to Millies, describing the similar coin dated 1788, reads (evidently through lack of space) "Djezirah ab-Wallis", i.e. "Island of Wales".

NOTE.—Value probably £2-10-0. This coin is Atkins' "Quarter-Rupee," No. 3, p. 205: vide Howorth, p. 33.

Copper.

5. *One Cent.* Diam., 16·5 mill. Weight, 177·9 grs. Plain edge. Plate I, 2.

Obverse.—Within a circle of strokes close to the edge, the Bale-mark of the Company: date, thus "J787" below; a rosette of eight dots between the centre figures.

Reverse.—Within a circle of strokes close to the edge, an inscription as on the Half-Dollar piece.

NOTE.—It is as well here to observe with regard to the copper coinage issued under this date, that it would seem that (besides a peculiar variety mentioned by Millies) there were two very distinctly separate issues both of the One Cent and Half Cent pieces, but only one issue of the Quarter Cent piece, which was probably too small in size to be of practical use as a coin.

The main difference between these two issues is that in the one the centre figures of the date are separated by a rosette of dots, but in the other by a six-pointed star. Judging from the fact that the "rosette" type seems markedly rarer than the "star" form, I have concluded that the former was the earlier and less numerous issue. For some of the issues more than one die was used as there is noticeable variation in some pieces.

From the application (referred to earlier) for a monetary advance for the minting of this coinage made in 1787 by the

Mint Master of the Calcutta Mint to the Government of Bengal, it seems clear that these issues were struck there.

The one Cent piece of this issue from its weight evidently corresponds roughly to the three Kapang piece issued in 1786 for the British Settlements in Sumatra.

This coin is Atkins' No. 8, p. 206: vide Howorth, p. 33: Marsden (p. 809) mentions "a small specimen in copper" bearing this date, but does not state the denomination: but this coin is mentioned by Millies, p. 99. The 1787 copper issue is not mentioned by Ruding. Value about 5s.

6. *One Cent.* Diam., 25.5 mill. Plain edge. Plate I, 3 (obverse).

Similar, generally, to No. 5, but in this coin the last figure of the date (i.e. "7") lies with its top towards the edge of the coin: also the shield is less pointed and the design in higher relief: the rosette has seven dots.

NOTE.—I have not seen this coin but it is described and figured by Millies, p. 99 and Plate II, fig. 20. It is not mentioned by Atkins or Howorth.

7. *One Cent.* Diam., 25 mill. Weight, 146.9 grs. Plain edge.

Similar, generally, to No. 5, but the centre figures of the date are separated by a six-pointed star.

NOTE.—There was more than one die used in connection with this coin: e.g.:

7A. From the top of the figure 4 to the bottom of the shield, the length is 21 mill: the letters and figures are large and coarse. Plate I, 4 (obverse)

7B. From the top of the figure 4 to the bottom of the shield, the length is 18.5 mill: the letters and figures are small and fine. Plate I, 5 (obverse).

There are very likely further varieties of die, but I have not had the opportunity of examining together any large number of specimens. It is more often met with than the "rosette" cent: value from about 2s. 6d. to 5s.

This coin is Atkins' No. 9, p. 206: he does not refer to any differences in die. Howorth does not even distinguish the specimens of these (or of the Half-Cent) pieces, in which the centre figures of the date are separated by a star, from those in which they are separated by a rosette.

8. *Half-Cent.* Diam., 18 to 20 mill. Weight, 75.2 grs. Plain edge. Plate I, 6.

Similar, generally, to No. 5, but, of course, a smaller coin; the rosette has six dots.

NOTE.—There are very likely die variations, but I have not noticed any marked difference in the few specimens which I have compared together.

This coin is described and figured by Millies, p. 99 and Pl. II, fig. 19. It is Atkins' No. 10, p. 206: vide Howorth, p. 33. Value about 2s. 6d.

9. *Half-Cent.* Diam., 20·5 mill. Weight varies from 87·5 to 66·6 grs. Plain edge. **Plate I, 7** (obverse).

Similar, generally, to No. 7, but, of course, a smaller coin.

NOTE.—This coin is Atkins' No. 11, p. 207. Value about 2s. 6d.

10. *Quarter Cent.* Diam., 13·5 mill. Weight, 14·6 grs. Plain edge. **Plate I, 8.**

Obverse.—The Company's Bale-mark with date "J787" below: no rosette or star.

Reverse.—Abbreviated legend as in the One-tenth Dollar Silver piece. (No. 4.)

NOTE.—This minute piece is very hard to find in good condition and is, generally, rather rare: value about 10s.

This coin is Atkins' No. 12, p. 206: vide Howorth, p. 33: it is not mentioned by Millies.

1788.

Silver.

11. *Half-Dollar.* Diam., 32 mill. Weight 205·4 grs. Plain edge. **Plate I, 9.**

Similar to No. 2 save for date: the two centre figures are separated by a six-pointed star.

NOTE.—This coin is Atkins' "Rupee," No. 4, p. 204, where it is figured: vide Howorth, p. 33: not described by Millies.

This is a very rare piece and seldom in the market: the present value is about £8. Specimens in the auction room have fetched £5-12-6. (Lot 172. Montague Sale, 1892): £4-14-0. (Lot 334. Chalmley sale, 1902, where it is figured in the catalogue Pl. II): £6. (Lot 225. Ellis sale. 1902): £5-5-0 and £5-12-6. (Lots 301 and 302. Murdoch sale. 1903): and £7-17-6. (Lot 231. Caldecott sale, 1912.)

12. *Quarter-Dollar.* Diam., 24 mill. Weight, 103·9 grs. Plain edge. **Plate I, 10** (obverse).

Similar to the Half-Dollar piece of the same date but, of course, smaller.

NOTE.—In Marsden (p. 809) appear the following observations which, evidently, from the weights given, refer to the Half-Dollar and Quarter-Dollar pieces. "Pulo Pinang or "Prince of Wales Island. There are in the collection a few "specimens of small silver coins struck in Bengal for the "English Settlement at this place. On one side is the customary "mark of the East India Company, with the date of 1788,

"and on the other, in the Arabic character, the barbarous words 'Jezirah Prans ab Wailis' for 'Prince of Wales' Island'. The weight of the larger coin is 4 dwt. $4\frac{1}{2}$ gr. and of the smaller, 1 dwt. 18 gr."

This coin is Atkins' "Half-Rupee", No. 5 p. 205: vide Howorth, p. 33: not described by Millies.

This seems to be met with even more seldom than the Half-Dollar: present value about £5. At the Montagu sale (Lot 173) a specimen with one of No. 13 fetched £4-6-0; a similar lot at the Ellis sale (Lot 226) £4-10-0; another (with three examples of No. 13) at the Murdoch sale (Lot 303) £4-12-0; a fourth at the Caldecott sale (Lot 233) £5-12-6.

13. *One-Tenth Dollar*. Diam., 17 mill. Weight, 40.9 grs. Plain edge.

Similar to the corresponding piece of 1788 but the two centre figures are separated by a six-pointed star.

NOTE.—There are at least three impressions from different dies: e.g:

13A. The date figures are high up on each side of the shield which is sharply pointed. Plate I, 11.

13B. The date figures are smaller and much lower down on each side of the shield which is rounder; the star is also smaller. Plate I, 12.

13C. I have not seen the third form; but, three specimens of these coins were sold at the Murdoch and Caldecott sales, where they are described as being from three varying dies: but I gather that this third variety has a small star and a broad toothed border.

This coin is Atkins' "Quarter-Rupee," No. 6, p. 206: vide Howorth, p. 33.

It is described and figured by Millies, p. 98 and Pl. II, fig. 18. It is also described and figured by Marsden, p. 809 and Pl. LIV, No. MCCXXXVIII. This is the only silver coin of the Penang series which can be regarded as other than extremely rare but, even so, it is very seldom met with: present value about £1.

Three specimens at the Caldecott sale (Lot 233) fetched £1-17-6.

I think it is fairly certain that the number of Half and Quarter Dollar pieces of 1788 which was struck was very small and that they hardly, if at all, ever passed into circulation: but, although such few specimens as I have personally seen have been in almost, if not quite, perfect condition, Messrs. Spink and Son, Ltd., inform me that they have had worn examples through their hands. With regard, however, to the One-Tenth Dollar of 1788 it is obvious, again, from what Captain Light wrote, that it enjoyed a considerable popularity and was coined in some quantity; and the great majority of the

dozen or more pieces which I have handled have been clearly already in many pockets.

1810.

Copper.

No more coinage appeared for Penang until this year and I have already detailed above, so far as my information extends, the events which gave rise to its introduction.

The design of the two denominations (i.e. One Cent and Half Cent) of coin which were adopted for circulation, was the same for both: it was selected from three Patterns two of which (including the one chosen) were by Lewis Pingo and the third by Matthew Boulton.

Colonel Johnson informs me (in lit.) that in the Museum at the Royal Mint, London, there are sets of obverse and reverse matrices and punches corresponding to the One and Half Cent (or as he calls them 'Pice' and 'Half Pice') pieces which went into currency and, also, that Pingo engraved the dies.

The two unadopted patterns are very rare and valuable.

14. *One Cent (or Pice).* Diam., 28 mill. Weight, 148.6 grs. Plain edge. Plate I, 13.

Obverse.—Within a circle of strokes close to the edge, the Arms, Crest, Supporters and Motto of the British East India Company: date in small figures in a curve below. The design of the arms portrayed consists of a heart-shaped shield carrying the cross of St. George: in the left hand upper quarter of the shield is a minute representation of the crowned shield of Great Britain; the supporters are lions rampant, each bearing between the fore-paws a standard the flag of which carries a St. George's Cross: the lions stand on a scroll-work riband on which is the motto "AUSPICIO REGIS ET SENATUS ANGLIAE": above the shield is the crest, i.e. a lion rampant to left standing on a rope-pediment and holding a crown between its fore-paws.

Reverse.—Within a circle of strokes close to the edge, a circle wreath of lily-cups which do not overlap each other and run counter-clock-wise: within this wreath, in Arabic script "Pulau Pinang" (i.e. Malay for "Island Penang").

This coin is only found either as a copper or bronzed Pattern and is rare: it was never adopted for circulation. It was, according to Ruding, designed by, or rather in the works of, the great mint-master Matthew Boulton of Birmingham (1728-1809).

This coin is Atkins' No. 15 p. 207, where it is figured: it is not referred to by Howorth but is described and figured by Ruding, Vol. II. p. 450 and Supplement, Part II, Pl. XVI, fig. 9; and by Millies, p. 100 and Pl. II, fig. 21. Millies, who

apparently described this coin from the figure in Ruding, states that under the right foot of the lion of the crest is a ball. This ball certainly appears in Ruding's engravings of both this coin and of No. 16 and is reproduced by Millies in his figures of the same coins and by Atkins in his drawings of Nos. 14 and 16. But, in the twenty or more actual specimens (patterns, proofs and currency) of Nos. 14, 15 and 16 which I have examined, there is no sign of any such ball; and I do not think it was engraved on any die.

Value about £2 now: a bronzed specimen at the Ellis sale (Lot 229) fetched £1-6-0.

15. *One Cent (or Pice)*. Diam., 28 mill. Weight, 144·5 grs. Plain edge. Plate II, 1.

Obverse.—Within a beaded circle close to the edge, the Arms, Crest, Supporters and Motto of the Company. The general design differs very greatly from No. 14. The Arms, etc. are all larger: the shield more elaborate: the riband carrying the motto differently arranged and the letters of the motto bigger: the figures of the date are in a straight line and are also larger.

Reverse.—Within a beaded circle close to the edge, a circle wreath of lily-cups which, besides having more petals than those in No. 14, overlap each other and run clock-wise. Within this wreath is an inscription as in No. 14. The wreath in this coin is much further from the rim of the coin than in No. 14.

NOTE.—This coin is rare and is only found as a copper or bronzed pattern: it was not adopted for circulation. It was produced at the Royal Mint in London and was designed by Mr. Lewis Pingo. This gentleman, a British subject, was well known as a medallist and coin-engraver: was born in 1743 and died at Camberwell on August 30th, 1830, at the age of eighty-seven. He was a son of one Thomas Pingo, whom he succeeded as Assistant Engraver at the Royal Mint, London, in 1776: three years later he was appointed Chief Engraver and remained in that position until 1815 when he was superannuated.

This coin is Atkins' No. 14, p. 207: present value about £2. A specimen in copper (from the Atkins collection) at the Ellis sale (Lot 227) brought £1-10-0 and a bronzed example (Lot 228) £1-1-0. It is not mentioned by Ruding, Millies or Howorth.

16. *One Cent (or Pice)*. Diam., 28 mill. Weight, 146 grs. Plain edge. Plate II, 2.

Obverse.—Similar, generally, to No. 14, but the design is enclosed within a beaded circle lying some little distance from the edge. The shield is also differently shaped and the flags held by the lion Supporters are larger.

Reverse.—Similar, generally, to No. 14 but the inscription

lies within a beaded circle some little distance from the edge. The wreath is composed of lily-cups and leaves which overlap and run clock-wise.

NOTE.—This coin was produced at the Royal Mint in London, being designed by Pingo, and was the type which was minted for circulation. Bronzed and copper proofs are known and are worth about £1 each. The circulated coin is fairly common and worth from 1s to 2s.

This coin is Atkins' No. 13, p. 206, where it is figured: vide Howorth, pp. 33 and 34, on which latter page the Reverse is figured. It is also described and figured by Ruding, Vol. II, p. 405 and Supplement, Pl. XVI, fig. 10: and by Millies, p. 100 and Pl. II, fig. 22.

17. *Half-Cent (or Half-Pice)*. Diam., 23·5 mill. Weight, 71·9 grs. Plain edge. Plate I, 14.

The design is similar to No 16, but, of course, the coin is smaller.

NOTE.—This coin was produced at the Royal Mint, London from Pingo's design and was put into circulation: copper proofs are known and are worth about £1 each. A proof specimen in copper at the Ellis sale (Lot 230) brought 15s. Circulated specimens are fairly common and are purchasable from 1s to 2s. 6d.

This coin is Atkins' No. 16, p. 207: vide Howorth, p. 33. It is not referred to by Ruding or Millies.

1824.

Copper.

18. *One-Third Cent*. Diam., 21 mill. Plain edge. Plate II, 6.

Obverse.—The Crest of the East India Company with the motto of the Company around; (for description see No. 14).

Reverse.—The value " $\frac{1}{3}$ cent" in four scripts arranged in the form of a cross, i.e. on the left, in English; above, in Bougi (the writing of the Celebes Islands); on the right, in Arabic; and below, in Chinese.

NOTE.—This is an extremely rare coin. It is described and figured by Atkins on p. 191 as No. 213 under the heading "Miscellaneous Indian Coins": and of it he writes: "This is an exceedingly rare piece, and as it only occurs in proof condition was most probably only a pattern, and never issued. From the value being expressed in Chinese and Malay as well as Persian, it was doubtless intended to circulate either in one of the Straits Settlements or in some portion of the Eastern Archipelago." See Introduction: Letter dated 14-2-1824 from Resident, Singapore, to Secretary to Government, Bengal. It never was adopted for circulation. The

Master of His Majesty's Mint, Calcutta, informs me (in lit. 7-3-24): "In an old register in the Die Department of this Mint I found rubbings of the dies prepared here and this enabled me to find the dies themselves. Both dies were marked in the register as 'unknown' and were not in juxtaposition as being the obverse and reverse of one particular coin. I enclose rubbings of them for your information." [These rubbings showed the coin accurately, J. A. B.] The Master of this Mint adds: "Dies (for this coin) were prepared here (i.e. Calcutta) and sample coins struck therefrom and sent to Singapore. The Mint Master, however, gave various reasons why the coins should not be supplied from this Mint. It appears that his recommendations were accepted and that coins of a different kind were really struck at Madras." A specimen was sold as Lot 237 at the Caldecott sale in 1912 for £1-16-0; whilst an example which formed part of Lot 236 in the Murdoch sale was figured in Plate II of the Catalogue.

1825.

Copper.

I have, in the Introduction, shown from contemporary correspondence the reasons why, so far as I can ascertain, the issue of 1825 was projected. It consisted of three denominations namely of Two, One and Half-Cent pieces. Until recently, it does not seem to have been accurately noticed where they were minted and Atkins, in referring, p. 207, to the Two Cent coin of this date remarks: "Although several years later (i.e. than the '1810 issue') this is not nearly such fine work as those preceding, and is most probably of Colonial fabrication."

I think it is now clear that, from what appears in the Introduction, this issue was struck at Madras.

The issue is not mentioned by Ruding or Millies.

None of the three pieces of this issue nor of the three similar pieces struck in 1828 are, in worn condition, uncommon: but none of them are seen often in extremely fine state. During my residence in Singapore from 1914 to 1920, I frequently came across abraded specimens of the Two and One Cent pieces of both issues in the rouleaux of modern One or Half-Cent coins of the Straits Settlements; these latter, wrapped up in newspaper in neat rolls to the value of one dollar or fifty cents, were obtainable anywhere in the markets or bazaars as small change, and this wrapping often concealed and included strange coins which were thus passed on to the chagrin of the general public, but to the pleasure of the coin-collector. I found, in this way, several examples of the old Penang Two Cent pieces, pierced by natives with a large central circular hole, for enabling them conveniently to be carried

(with Chinese cash or other centrally pierced coins) on a wire or cord.

19. *Two Cents.* Diam., 31·5 mill. Weight, 292·7 grs. Plain edge. **Plate II, 4.**

This coin is, save for date, similar in design to the One Cent currency piece of 1810 (No 16), but is, of course, much larger. It is of coarser workmanship. This coin is Atkins' No. 17, p. 207 : vide Howorth, pp. 33 and 34. Value about 2s.

20. *One Cent.* Diam., 28 mill. Weight, 139 grs. Plain edge.

Similar, generally, to No. 18, but of course, smaller. This coin is Atkins' No. 18, p. 207 : vide Howorth, pp. 33 and 34. It is common : value about 1s.

21. *Half-Cent.* Diam., 24·5 mill. Plain edge. **Plate II, 3.**

Similar, generally, to No. 19, but, of course, smaller. This coin is Atkins' No. 19, p. 207 ; vide Howorth, pp. 33 and 34. It seems a difficult coin to find : value 2s. 6d.

1828.

Copper.

This issue consisted, like that of 1825, of Two, One and Half-Cent pieces and, save for the date, the coins of both issue are almost exactly similar. I do not, at present, know with certainty where the 1828 issue was minted ; but Colonel Johnson informs me that he has not found any evidence that it was struck at the Royal Mint, London and that it has hitherto been assumed that it was executed at Calcutta : but I think that it was struck, like the 1825 issue, at Madras.

22. *Two Cents.* Diam., 31·5 mill. Weight, 290·4 grs. Plain edge. **Plate II, 7.**

Similar, generally, to No. 18, save for date. This coin is Atkins' No. 20, p. 107 : vide Howorth, pp. 33 and 34. It is fairly common : value about 2s.

23. *One Cent.* Diam., 28 mill. Weight, 146 grs. Plain edge. **Plate II, 8.**

Similar, generally, to No. 19, save for date.

This coin is Atkins' No. 21, p. 207 : vide Howorth, pp. 33 and 34.

It is fairly common : value about 1s. 6d.

24. *Half-Cent.* Diam., 24·5 mill. Weight, 69·7 grs. Plain edge. **Plate II, 9.**

Similar, generally, to No. 20, save for date.

This coin is Atkins' No. 22, p. 207 ; vide Howorth, pp. 33 and 34. Not often met with : value about 2s.

It is, unfortunately, in Patna, not possible to consult, at present, full Numismatic Publications, as the Library of the

Patna Museum is still in its infancy : in consequence the author has had, largely, to rely upon his own works of reference. He would like to record his most cordial thanks, for the help accorded to him in the compilation of this paper, to the authorities of the London, Calcutta, Bombay and Madras Mints ; to the Governments of Calcutta, Bombay and Madras ; to the British Museum, and the Indian Museum, Calcutta ; the Raffles Museum, Singapore, Straits Settlements ; Mons. J. Schulman of Amsterdam, and many other private correspondents who, by their kind help, have enabled the author to produce what, after more than five years' investigation, is hoped to be the most full account of the coins of Penang which has yet been put together.

Patna, India.
February, 1924.

JOHN A. BUCKNILL.

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248.¹ SOME OBSERVATIONS ON THE METROLOGY OF THE EARLY SULTANS OF DEHLI.

On pages 73 and 74 of his "Coins of India," Mr. C. J. Brown has incorporated certain conclusions which have been arrived at by Mr. Nevill and myself in regard to the metrology

¹ Read at annual meeting of the Numismatic Society of India at Patna, January, 1924.

of the early Sultāns of Dehli. As these conclusions are radically different from those laid down by Thomas in his "Chronicles of the Pathan Kings of Delhi" and accepted without demur during the last fifty years, we wish to put before the Numismatic Society of India our reasons for challenging the pronouncements of that distinguished numismatist. "Some new evidence" writes Mr. Thomas (p. 3) "has lately come to light in the journals of western travellers in India during the first half of the eighth century of the Hijrah, which coincides in a singular manner with the data afforded by the weights and intrinsic contents of existing coins; so that we are now in a position to maintain with confidence that the scheme of coinage, adopted by Altamsh from possibly conflicting native traditions, recognised the use of gold and silver pieces of equal weights. The intentional mint standard must have ranged very closely upon the 175 grains Troy, which amount can be nearly told in the balance by the better specimens to be found in modern cabinets; a definite weight also, for which there was high authority in the *Sata raktika* or 'one hundred rati' divisional term, which appears in early post-Vedic Commentaries. The silver tanka which, although it was anomalously composed of 100 Indian Gunja seeds (*Abrus precatorius*), was never divided in practice by any number than 64. The favourite subdivisional current piece, in more advanced times, seems to have been $1/8$ or $8/64$, which latter denomination it preserved in the *Hasht kārī* or 'eight kārīs,' the counterpart and correspondent of eight *Jitals*, 64 of which also fell into the general total of a *tankah*. And here it would seem that more purely indigenous traditions had to be reconciled to intermediate Aryan innovations. The new *Tankah* might rule and regulate its own subdivisions, but it does not seem to have been able to emancipate itself from the old silver *Purāna* of 32 ratīs of Manu's code, which maintained its own weight of 56 grains, in independent isolation, down to the time of Muḥammad bin Tughlaq. So intuitive in the native mind was the idea of reckoning by *fours*, the 'Gunda' of the modern indigène, that gold and silver were supposed to conform to some such law, being estimated theoretically, whatever the current rate may have been at any given moment, at 1 : 8. So also the silver piece was divided into 8 (or primarily 8×8) and the copper exchange against silver commenced with 4 *jals* to the $1/64$ th of a *tankah*. The Quaternary scale, in short, was all pervading; there was no escaping the inevitable 4s, 16s, 32s and 64s, which, having survived alike Aryan intrusion and Muhammadan conquest, still flourish undisturbed by the presence of British decimals."

On p. 220 Mr. Thomas further writes: "The retention by Altamsh, so unreservedly, of local systems of reckoning in the

“minor sums up to the measure of the *tankah*, would seem necessarily to imply that the latter weight itself formed a definite unit, both theoretically, and practically, in the pre-existing monetary computations. This is a concession which could not previously have been claimed, as Altamsh might have been supposed to have retained a leaning to Ghaznavi standards, and the new *tankah* might well have stood for a double *dirham*. The turning point however in this identification depends mainly upon the authentic weight of the true Indian unit, the *ratī* as recognised at the period in the exact locality of the metropolitan mint, and it is not impossible that the coins themselves may aid in fixing this still indeterminate quantity. The query then presents itself as to how many *ratīs* of gold and silver this *tankah* was estimated to contain. The first answer within reasonable limits suggested by the progression of *jours* in the table just given (from the *Masālik* by Shaikh Mubārak) would be 96; but it is a very singular fact that the old tables of weights in Manu do introduce a decimal element after 32 *ratīs* in the silver weight and after 320, *ratīs* in the gold weighments, the latter having already felt something of the decimal action in the initial use of 5 *ratīs* to a *māṣka*, and finally we have an absolute silver *satamāna* or 100 *mana* weight. A very important bit of collateral evidence is contributed by the subsequently devised ‘*adalīs*, whose weights are much more closely defined both in the beautiful silver coins of Muḥammad bin Tughlaq and in the better specimens of the brass tokens which were designed to replace these 50 *kānī* pieces in the general circulation. These coins, as a rule, touch very closely upon the exact 140 grains and it is scarcely possible to doubt that this weight represents the 80 *ratī* gold *suvarna* equally with the copper *Kārsha* of Manu’s tables. . . . If the former association is conceded, my estimate of the *ratī* at 1.75 grains falls in with singular evenness, for the ‘*adalī*, $80 \times 1.75 = 140$, for the silver *tankah* or *satāraktika* $100 \times 1.75 = 175$.”

Thomas in effect lays down the following principles :—

- (a) The gold and silver *tankas* are of equal weight.
- (b) The *tanka* weighs 100 *ratīs*.
- (c) The *ratī* = 1.75 grains, giving a *tanka* of 175 grains.
- (d) The *tanka* is divided into 64 parts, each part being known as a *kānī* or *jītal*.
- (e) The ratio of gold to silver is 1 : 8.
- (f) The ratio of silver to copper is 1 : 64.

With (a) there can be no disagreement—the coins themselves supply conclusive evidence on this point.

(b) Thomas’s reasons for adopting this standard appear to be that the *tanka* was a local unit found in existence by Altamsh and adopted by him, that a “hundred *ratī*” divisional term

“appears in early post-Vedic Commentaries” and that “the old tables of weights in Manu *do* introduce a decimal element after 32 *ratīs* in silver weights and after 320 *ratīs* in the gold weights, the latter having already felt something of the decimal action in the initial use of 5 *ratīs* to 1 *māsha* and finally we have an absolute silver *salāmāna* or 100 *mana* weight.” We may admit that the *tanka* was based on an existing local standard but the application of post-Vedic and Manu weights to the metrology of the thirteenth century Muhammadan conquerors appears to us singularly fanciful and unconvincing. Nor is it consistent with the evidence of the coins themselves. In this connection, however, it has to be remembered that Thomas had not the advantage of dealing with such an extensive series of coins as now exists. At the time he wrote the *Chronicles* there were no fractional silver pieces of the early Sultāns known to him. It is these fractional pieces which assist us materially in disposing of the 100-*ratī tanka*. A paper published in *Numismatic Supplement* No. XXVII (1916) gives a summary of the early small silver pieces then known and few have been discovered since. They fall very clearly into four categories:—

1. Half *tanka* about 83 grs.
2. One-third of a *tanka* about 56 grs.
3. One-sixth of a *tanka* about 28 grs.
4. One-twelfth of a *tanka* about 14 grs.

A small gold piece of 55·7 grs. in the British Museum (*Num. Chron.*, 1921, Pts. III and IV, p. 346) goes to show a similar division in the gold coinage. These indicate the introduction of division by 3s as well as by the traditional 4s, and open the way to the acceptance of a 96-*ratī tanka*, which Thomas himself admits is the standard which would first suggest itself to one enquiring into the number of *ratīs* composing a *tanka*. With a 96-*ratī tanka* the four classes of small coins would be pieces of 48, 32, 16 and 8 *ratīs*. They would not fit into a 100 *ratī* scale. Further they provide a place for the 32-*ratī* “*purāna*” which Thomas’s theory admittedly isolates as a concurrent piece of money, detached from the ordinary currency.

That this scale, 96 *ratīs* = 1 tola, was no stranger to Indian currency we know from the memoirs of Bābur, who found it in existence, when he arrived in India. It is permissible to hold, when the view is corroborated by the coins themselves and there is no evidence to the contrary, that the same scale was in force two and three centuries earlier, whether the official weight of the *ratī* had undergone any change or not in the interval. We know from Ferishta, whose evidence on this point there seems no good reason for doubting, that in the days of ‘Alāu-d-dīn Muḥammad at any rate (i.e. early in the fourteenth century) the *tanka* weighed a tola.

We may therefore assume with confidence that the imperial metropolitan *tanka* weighed 96 *ratīs*. We say "metropolitan" advisedly, for the weight of a *tola* in *ratīs* differs largely in different contiguous districts at the present time and may well have done so in the earlier days.

(c) The translation of the weight standard of Indian coinage from *ratīs* to grains Troy is of secondary importance and is mainly useful as a check. The Indian unit was a *ratī* (the red or white seed of the plant *Abrus precatorius*). The weights of the *ratī* are not constant and may vary from $1\frac{1}{4}$ grains to 2 grains. For the Dehli coinage the *ratī* weight adopted was probably the one current in the locality. To decide what this weight was in grains it will be sufficient if we can select the most convenient weight within certain limits imposed by the coins themselves. There can be little doubt that the weight adopted by Thomas for his *tanka*—175 grains—was too high. Recent experiments conducted with 68 gold *tankas* in fine condition, covering the period 664 to 799 A.H., give an average of 168.24 grains, the highest individual weights being 170.02 grs. in the case of a coin of Fīroz Shāh Zafar and 170.01 grains yielded by a particularly brilliant coin of Fīroz Shāh. The same weight is reached by a solitary silver *tanka* of the latter Sultān, which barely outweighs a *tanka* of 'Alāu-d-dīn Muḥammad; but the average of the same number of silver coins, to all outward appearances in equally good condition and covering the same period, is only 166.63 grains. There is also a solitary gold coin of Muḥammad bin Sām in Mr. Nevill's cabinet—the earliest known gold piece of the revised Muḥammadan standard—which weighs 172.18 grs. It may be conceded that all Indian coins owing to the absence of any milled edge and the somewhat crude methods of striking, lend themselves to sweating. It is always necessary therefore to allow for a small loss of weight even in coins of apparently brilliant condition. The maximum weights given above indicate that the *tanka* of 96 *ratīs* weighed something between 171 and 173 grs. Within those limits it is permissible to adopt an arbitrary *ratī* weight in grains, provided that it fits in with the ascertained weights of the coins themselves. We have come to the conclusion that the weight that should be adopted is 1 *ratī* = 1.8 grain, at any rate up to the invasion of Tīmūr. The official weight of the present *ratī* is 1.875 grains. We know that in Calcutta in 1848 the official weight of the *ratī* was 1.796 grains. According to Prof. Hodivala the Mughal *tola* weighed between 185 and 186 grains, giving a *ratī* of 1.9375 grains. There is good reason to suppose that the imperial *tola* was raised in weight after 800 A.H. and again by Sher Shāh. The weight we have chosen would give a *tanka-tola* of 172.8 grains, an 80 *ratī* piece of 144 grains and a 32 *ratī* piece of 57.6 grains. This scale accords with known coin

weights better than that adopted by Thomas. For example a *ratī* of 1.75 grains means an 80 *ratī* piece of 140 grains, and a 32 *ratī* piece of 56 grains, and in support of his standard Thomas points to the "140 grain" piece (*adalī*) of Muḥammad bin Tughlaq and the 56 grains "purāna." Unfortunately for this view, however, we know from the coins themselves that the "*adalīs*" frequently weigh more than 140 grains (vide Num. Supp. XXXV article 220) and similarly the "purāna" is often met with weighing over 56 grains. We know of no instances where weights of 144 grains and 57.6 grains are exceeded by these coins.

(d) The assumption by Thomas that there was a coin denominated "*kānī*" illustrates his tendency to look for some archaic derivative for his metrological standards rather than accept the explanation which lies nearest to hand.

He concluded that the *tanka* was divided into 64 *ḡitāls* or *kānīs* and adduced in support of his conclusion the fact that in Telugu and Canarese the word *kānī* means 1/64th. Professor Hodivala has however pointed out that "*kānī*" is nothing more than a termination misread for "*gānī*." Thus *yagānī* means "a single piece" *dugānī*, "a double piece," *hasht-gānī*, "a piece of eight" and so on. "*Yagānī*" "*dugānī*" are ordinary Persian expressions and Persian names were chosen for the subdivisions of the *tanka*, e.g. *hasht*, *shash*, etc. The questions then are—What was the unit for which "*yagānī*" stood and eight of which were represented by the *hasht-gānī*? And how many of these units went to make up the silver *tanka*? The first point is settled by Shaikh Mubārak in his *Masāliku-l-ʿabsār*, extracts from the French translation of which are quoted by Thomas on p. 238 (n) of the "Chronicles" and later by Shamsh-i-Sirāj (Thos., p. 278).

The former writes:—

"Une pièce, qui est la moitié du dirhem Sultani, se nomme *yagānī* (pièce d'un) et vaut un *ḡjital*." "Le dirhem Sultani vaut le tiers d'un dirhem *shashgānī*. . . qui équivaut aux trois quarts du dirhem *hashtgānī*." "Le *tanka* d'argent comprend huit dirhems *hashtgānīs*."

It is on this last passage that Thomas relies to support his conclusion that the silver *tanka* was divided into 64 *ḡitāls* or *kānīs*, a division which had the attraction of the "inevitable 4s." from which he thought there was no escaping in Indian metrology. And at first glance it certainly does suggest a *tanka* of 64 *ḡitāls*. Some colour is also given to the same view by the list of coins current in the time of Fīroz Shāh given by Shamsh-i-Sirāj in his "*Tārīkh-i-Fīroz Shāhī*." Next in the scale to the "*tanka-i-nuḡra*" he mentions a "*sikka-i-chihāl-o-hashtgānī*" which if the *tanka* were 64 *ḡitāls* would be a $\frac{3}{4}$ ths *tanka*.

It is our considered view on the other hand that the

evidence when examined does not warrant the assumption of a *tanka* of 64 *ḡitāls*.

In the first place the passage in the *Masāliku-l-absār* "le *tanka* d'argent comprend huit dirhems hashtgānīs" is definitely contradicted by another passage in the same work which runs "800 Tounmans dont chacun vaut 10,000 *dīnārs* (*dīnār* was the term applied to silver as well as gold *tankas*—here silver is meant), et le *dīnār* 6 *dirhems*; en sorte que cette somme se montait à 8 millions de *dīnārs* courants ou 48 millions de *dirhems*." This is very precise and the equation is doubly repeated. We are therefore justified in thinking it possible that either the "huit" in the former passage was a mistake for "six" or that the word "hashtgānī" should have been "shashgānī." There is in Persian writing considerable similarity between "hasht" and "shash" and the suggested emendation of *shashgānīs* for *hashtgānīs* is not far fetched, having regard to the very definite equation given elsewhere in Shaikh Mubārak's work. It would seem too that the "shashgānī" was a popular coin in Muḥammad bin Tughlaq's reign as well as in that of his successor; for Shaikh Mubārak goes on to say "Ainsi les monnaies d'argent (note the metal) en usage dans l'Inde, sont au nombre de six; savoir le shānzdagānī, le duazdagānī, le hashtgānī, le shashgānī, le sultānī et le yagānī Ces trois espèces de dirhems (presumably he refers to the last three mentioned by him) ont cours dans la commerce et sont reçues universellement."

The passage in the *Tārīkh-i-Fīroz Shāhī* is a little more difficult to explain. The 48-gānī piece appears to be described as a coin distinct from the *tanka-i-nugra*. There is however the significant addition to the word "48-gānī" of "sikka." Now سکه and سک in Persian manuscripts, where dots are generally omitted, are very similar and are very likely to be mistaken one for the other. Thomas himself has misread "sikka" as "tanka" on the coin No. 301 of his "Chronicles." It is therefore not impossible that the word used by Shāms-i-Sirāj was "tanka-i-48 gānī." In the alternative, as in Persian the word و may mean "or" as well as "and," the passage may perhaps be interpreted "the *tanka* of silver, i.e. a coin of 48-gānī." It is to be noted also that while the term "sikka" (commonly applied to the silver *tanka*) is used for the 48-gānī piece, the term applied to all the other lesser denominations is "muhr" مهر [query, an expression to denote billon coins of token value ?] Moreover, on the assumption of a 64-gānī *tanka* a piece of 48-gānī would be almost meaningless. It is natural enough to suppose that the first division of the *tanka* would be into halves, and it is significant that while we have the 25-gānī (Southern), and 24-gānī (Northern), there is no mention at all of a 32-gānī piece.

Ferishta has told us, in writing of 'Alāu-d-dīn Muḥammad's reign, that the *tanka* comprised 50 *ḡitāl*s. We get a remarkable corroboration of this in Muḥammad bin Tughlaq's token coin (No. 196 of the "Chronicles") which is described as a "*tanka-i-panjāḡānī*" i.e. 50 *ḡitāl*s.¹ These coins all hail from the mint of Daulatābād in the Deccan. Similarly the "nisfe"—the half piece (No. 204 of the Chronicles), which would correspond to Shamsh-i-Sirāj's "25-*ḡānī*" piece, was also struck at Daulatābād. Was then the *tanka* differently subdivided in Daulatābād and Dehli? We think that the evidence is clear that it was. Leaving aside the 48-*ḡānī* piece, Shamsh-i-Sirāj gives the following coins as current in Firoz Shāh's time—25 *ḡānī*s, 24 *ḡānī*s, 12 *ḡānī*s, 10 *ḡānī*s, 8 *ḡānī*s, 6 *ḡānī*s, and one *ḡitāl*. They will not all work into one scale of 50 *ḡitāl*s to the *tanka*. We cannot contemplate a currency with subdivisions of 24/50ths, 12/50ths, 8/50ths or 6/50ths. The 25-*ḡānī* and 10-*ḡānī* on the other hand clearly fit in with the 50 *ḡitāl* scale, whereas they are highly inconvenient subdivisions of either a 64 or a 48 *ḡitāl tanka*. Similarly the "6-*ḡānī*" piece will not go well with a 64 *ḡitāl tanka*. We are therefore driven to the conclusion that there were two different scales in force in Dehli and the Deccan, the former of 48 and the latter of 50 *ḡitāl*s to the *tanka*. We have shown that Shāikh Mubārak's evidence is to the effect that under the Dehli scale the *tanka* consisted of six *dirhams*. These *dirhams* could hardly be anything but *hashtḡānī*s. This would also lead us to a *tanka* of 48 *ḡitāl*s. Firishta was a Deccani. He would therefore be likely to be more conversant with and more likely to record the scale in force in Daulatābād than the Dehli scale.

To sum up, we are of opinion that in the reign of Muḥammad bin Tughlaq (possibly in that of 'Alāu-d-dīn Muḥammad, though this has yet to be proved from the coins) the *ḡitāl* was in Dehli 1/48th of a *tanka*, i.e. 2 *ratīs*, while in the Deccan 50 *ḡitāl*s went to the *tanka*.

We cannot however assume that on this account the *ḡitāl* was of the same value in the time of the earlier Sultāns. On the contrary such evidence as there is indicates that it was not. There is nothing extraordinary in the fact that Muḥammad bin Tughlaq, when he—if it was he—remodelled the coinage, should adopt the term *ḡitāl* to express a lower value than it had hitherto borne. In Akbar's time the *ḡitāl* had fallen still further to 1/25th of a *dām*, i.e. 1/1000th of a rupee. The *tanka* itself became a copper denomination. Such changes are not

¹ Thomas thinks these 50-*ḡānī* pieces are meant, as shown by their weight, to represent the '*adli*'. But in the first place the word used on the coin is definitely *tanka* and secondly a 50-*ḡānī* piece on Thomas's own standards of weight could not have weighed more than 136 odd grains;

64 : 175 :: 50 : 136·7.

unusual. The English £. s. d., descendants of the copper *libra*, the gold *solidus* and the silver *denarius*, are a familiar example.

The testimony in Indian histories that the *ḡīṭal* was a current coin in the seventh century A.H. and not merely a money of account is abundant, and we do not propose to elaborate this point. The nature of the frequent references to *ḡīṭals* in the extracts from the Indian historians published by Elliot and Dowson makes this conclusion inevitable. The question for discussion is—what was the value of the *ḡīṭal* in the 7th Century A.H.? Thomas came to the conclusion (p. 47 of the "Chronicles") that the *ḡīṭal* was "merely a continuation of the old Hindu Dehliwāls, without however accepting any necessary identity between the palpable coins and the money of account." The reason for this reservation is not obvious.

We agree with the view that *ḡīṭal* and Dehliwāl were merely two names for the same coin, the former being the later. As Thomas points out, the author of the *Tāju-l-Maʿāṣir*, who lived in the first half of the seventh century A.H. "refers his "money value nearly exclusively to Dilliwal while Minhāj-*u*-*ṣ*-*Ṣirāj* who had more extensive and later experiences reckons "his totals in *ḡīṭals* and *tankas* of silver." The origin of the term *ḡīṭal* is obscure. Some light may perhaps be thrown on it by a small anonymous copper coin which has recently come to light. It came from the Kurram valley and bears the legends "*ḡīṭal yagānī*" and "*zarb Akarmān*" in what appear to be early seventh century A.H. characters. There is also some reason on palaeographical grounds for doubting the assignation of the "*ḡīṭal yagānī*," figured as No. 207 in the "Chronicles," to the time of Muḥammad bin Tughlaq. In type as well as script this coin appears to belong to an earlier period. The possibility is indicated that the *ḡīṭal* was the unit of the copper currency in the frontier regions and that the name was introduced by the Muhammadans and applied by them to the unitary coins they found current in Hindustān, viz. the Dehliwāls. When Altamsh laid the foundations of a fresh coinage with a *tanka* of 96 *ratīs*, the Dehliwāls had become too firmly established as current coin to be ignored and had to be incorporated into the new currency, their weight of 32 *ratīs* readily falling into the revised scheme. What subdivision of the *tanka* they formed cannot be laid down with any confidence; but judging from the results of an assay made by Thomas (Chronicles p. 127) of 12 billion coins of Nāsiru-d-dīn Maḥmūd of the 32-*ratī* class, which gave an average yield of silver per coin of nearly 12½ grains, we hazard the opinion that the *Dehliwāl* or *ḡīṭal* represented 1/12th of the *tanka*, or in other words was the equivalent of a "*māsha*." Thus they would correspond to the tiny silver pieces of 14·4 grains which have been already noticed. Thomas's view seems to be that these coins of mixed silver and copper were not definite subdivisions of the *tanka*,

but relied for their value in every day use on the determination in each case by buyers and sellers of the amount of silver in the coin (Chronicles p. 229). From this view we wish to record our complete dissent. Not only is it both inconceivable to European ideas as Thomas admits, and without parallel in the East, but we refuse to believe that the Indian public would tolerate a state of affairs which would be a source of perpetual confusion and place the ordinary person entirely at the mercy of the money-changer. In article 215 of the Numismatic Supplements to the J.A.S.B. it has been explained that homogeneity in billon pieces is practically unattainable. It need therefore be no occasion for surprise that some of the billon coins were more coppery than others of the same weight and type and vice versa. But that such coins were intended to and did pass at one and the same value appears to us incontestable. The statement made by Thomas appears to have been based on the great difference in appearance at the present day between coins of the same weight bearing identical legends, but these same coins when newly issued may well have had an appearance to all intents and purposes similar in colour, and the actual admixture of silver in any one specimen could not have been determined save by assay. The tables given on pp. 359 and 368 of the 'Chronicles' illustrate the deceptiveness of outward appearance; for at first sight any coin of Bahlol would seem to have a larger silver content than the later issues of Sikandar Lodī, whereas the assay shows a contrary result.

(e) Thomas's views on this point are given on pp. 231 to 238 of the Chronicles. They are briefly that in the seventh century A.H. the normal rate of exchange between silver and gold *tankas* was eight to one, but that owing to the influx of gold as a result of the conquests in the Deccan, the value of that metal depreciated and when Muḥammad bin Tughlāq came to the throne he revised the coinage to meet this depreciation; adopting a 7:1 rate of silver to gold and introducing a new heavier gold coin, the *ḍinār* of 200 grains, and a new lighter silver coin in the '*adlī*' of 140 grains. In this manner eight of the old silver *tankas* would still be required to buy the new gold *ḍinār* while the latter would exchange for ten of the '*adlīs*'. He would explain Ibn Batutah's definite statement that the rate in the latter part of Muḥammad's reign was 10:1 by suggesting that he was referring to the '*adlī*'.

The arguments by which he seeks to establish this position are far from easy to follow, and are indeed vitiated at the outset by being based on premises which are demonstrably incorrect. In the first place, as we have shown, the '*adlī*' cannot have been a piece of only 140 grains. Further the weight of the old *tanka* can hardly have been as high as 175 grains. Nor is it possible to assume that the new *ḍinār* weighed just 200 grains, for the

simple reason that many heavier specimens are known. If it be conceded that the *tanka* consisted of 96 and not of 100 *ratīs*¹ it is probable that the new gold coin would be devised to comprise an even number of *ratīs*. Judging by the weight of the coins, this number was 112, i.e. $96 + 16$ which with a *ratī* of 1·8 grains would require a coin of 201·6 grains: a figure which admirably corresponds to ascertained facts.

There is no historical information, so far as we know, as to the rate of exchange in the time of the earlier Sultāns. Ibn Batutah has however stated categorically that in the latter part of Muḥammad's reign (he came to India in 734 A.H.) the ruling rate was 10:1. There is no sufficient reason for thinking that he had the '*adlī*' in his mind when he made this statement. The '*adlī*' seems to have been a short-lived coin. Specimens are very scarce and are known only of 725, 726 and 727 A.H., whereas we have silver *tankas* of all but one of the years from 725 to 734, after which they seem to have been replaced by a billon currency. It has also to be borne in mind that 'Alāu-d-dīn Muḥammad struck very large numbers of silver *tankas* (they are indeed still by far the commonest of the silver coins of the Sultāns), and so added to the large stocks left by Nāsiru-d-dīn Maḥmūd and Balban, all of which must have been still doing service in Muḥammad bin Tughlaq's reign. Apparently it was never the practice of the Sultāns to recall the coins of their predecessors, and the large stocks of existing *tankas* may well be one reason for the restricted issues of silver coins by the Tughlaqs, a fact supported by their rarity. We may therefore safely assume that it was 10 of the silver *tankas*, not '*adlīs*' which went to a gold *tanka*. Is there then any ground for thinking that a different rate was prevalent during the early part of the reign? The reasons suggested are two:— (1) that the spoils of the Deccan must have caused a fall in the value of gold, (2) that this fall is reflected in the issue of the *ḍinār* and '*adlī*'. That there was a preponderating increase in the stocks of gold as compared with silver in consequence of the Deccan conquests we take leave to doubt, when we consider the enormous issues of silver *tankas* by 'Alāu-dīn Muḥammad, whose spoil from the South probably exceeded anything acquired by Muḥammad bin Tughlaq. But if there was, that increase, as Thomas himself points out, must have commenced thirty years before and we should have expected a revision of the standard long before Muḥammad bin Tughlaq. A great deal of the Deccan gold went into the imperial coffers and seems to have been absorbed by lavish use in the palace itself if we may judge by contemporaneous accounts. The Sultāns were absolute mon-

¹ An additional reason against Thomas's adopted weight of 175 grains is that, at 96 *ratīs* to the *tanka*, it would give an unmanageable *ratī* of 1·822916 grains.

archs and absolutism plays a large part in preserving the steadiness of the ratio of gold to silver (vide Macdonald's *Evolution of Coinage* 1916, p. 39). That it did remain steady during the whole of the seventh century is evident from the uniformity throughout that period of the gold and silver *tankas*, and we can find no substantial reason for thinking that the rate was any other than that of 10 to 1, as stated by Ibn Batutah. Colonel Yule has accepted this as the normal rate during the seventh century. He has indeed suggested that the rate fell to 7 : 1 in Muḥammad bin Tughlaq's time, and he supports his view by suggesting that the new *dīnār* and *ʿadlī* were introduced in order to preserve the familiar ratio of ten silver pieces to one gold. This suggestion however relies for its plausibility on Thomas's weights of the *tanka*, *dīnār* and *ʿadlī* which we have demonstrated to be incorrect. Ten of the *ʿadlīs* of 80 *ratīs* would not exchange for a gold *dīnār* of 112 *ratīs* at the ratio of 7 : 1. An important fact that seems to have been ignored by both Thomas and Yule is that the gold and silver *tankas* were being issued *concurrently* with the new pieces, apart from the absence of any attempt to call in the vast mass of silver coinage not forty years old and still in common use. It is hardly conceivable that this should have been done if the ratio had been revised. It is suggested that the natural explanation of the new pieces is that they were merely additions to the series of current coins. Why then go out of the way to look for any other? Muḥammad evidently took a special interest in his coinage, as the varied character of his coins shows, and there is nothing surprising in his adding two new pieces of different values from those already in existence. They also fit readily into the currency, for, at the rate of 10 : 1, twelve *ʿadlīs* of 80 *ratīs* would be equivalent to 10 silver *tankas* or one gold *tanka* of 96 *ratīs* and fourteen to one *dīnār* of 112 *ratīs*. It is true that the heavy gold *dīnār* bears no exact relation to the old silver *tanka* of 96 *ratīs*, but this was probably a reason for the early disappearance of the new gold piece.

(f) The extracts quoted at the beginning of this paper scarcely do more than imply that the ratio of copper to silver favoured by Thomas was 64 : 1, but that this was his view is clear from other passages in the *Chronicles*, e.g. p. 367. His main argument for this standard appears to be that the *tanka* "was never divided in practice by any other number than 64." This is in itself insufficient and has been shown to be fallacious. In the days of the Sūris we get a definite ratio of 72 to 1, but it seems probable that in the earlier Muhammadan times copper, which was extensively found in India and formed a larger proportion of the coinage than silver, was less rather than more valuable as compared with silver. We do not think that the copper coins of the early Sultāns were at any time mere tokens like the English penny. The evidence of the coins

indicates that the standard adopted by the Muhammadans was tri-metallic, i.e. that the gold, silver and copper coins bore a true relation to each other in terms of their accepted metal value. We have found that the gold *ratī* was deemed equivalent to ten silver *ratīs*, and it remains to ascertain how many *ratīs* of copper were taken as equivalent to one *ratī* of silver. Here we must seek for help from the coins themselves. If we take the copper coin of the highest weight we find that the type remains constant from Altamsh to Muhammad bin Tughlaq. Presumably then the coin is a good guide to the copper standard. The weight of these coins runs from 65 to 71 grains, and if allowance is made for wear and tear, an original weight of 72 grains would be quite conceivable. This, at the rate we have given reasons for adopting, would be equal to 40 *ratīs*. Assuming however that copper was less valuable than in the Sūri times, when possibly the currency became bi-metallic owing to the adoption of an arbitrary value for copper, the ratio of 40 : 1 would be too low. A ratio of 80 : 1 would be more likely. At this rate the *ratī* of silver would be worth 144 grains of copper, a weight which is met with in the copper currency of the eighth century. An early *ḡīṭal* of 8 *ratīs* of silver (12 to the *tanka*) would thus be equivalent to 1,152 grains of copper. The inconvenience of having coins of this weight would afford a good reason for the absence of any, but the smallest fractions of the *tanka* in pure copper, and consequently for introducing a mixture of silver whereby the size of the *ḡīṭal* could be reduced to handier proportions. On the other hand a pure silver *ḡīṭal* would be almost equally inconvenient—except as largesse money. Later when the *ḡīṭal* became 1/48th of a *tanka* it would only be equivalent to 4 of these 72 grain coins. This fits in with the statement of Shaikh Mubārak that a *ḡīṭal* was worth 4 *fulūs* and it seems probable that it was the 72 grain copper coin to which the historian refers as the standard *ḡāls*.¹

Incidentally it is to be noted for what it may be worth, that the *Kārshapana* which was the copper unit of ancient India, was itself 80 *ratīs* in weight. Thus a standard of 80 *ratīs* of copper to one of silver may be said to have the sanction of ancient tradition, to which Thomas attached so much value.

Our views then may be briefly summed up as follows:—

- (a) the gold and silver *tankas* were of equal weight.
- (b) the *tanka* weighed 96 *ratīs*.
- (c) the *ratī* weighed 1·8 grains, giving a *tanka* of 172·8 grains.

¹ The 20-*ratī* piece of Muhammad bin Tughlaq which bears the designation *sikka do-gānī* should on this calculation have weighed 320 *ratīs* in copper; a fact which is of interest as illustrating the extent to which fiction was carried in the matter of the forced currency.

- (d) In the seventh century A.H. (thirteenth century A.D.) the silver *tanka* consisted of 12 *ḡitals* otherwise known as Dehliwāls—these *ḡitals* being ordinarily of billon, though a few silver *ḡitals* were also issued. When the coinage was remodelled by Muhammad bin Tughlaq the Dehli *tanka* was subdivided into 48 *ḡitals* while the Deccan scale was 50 *ḡitals* to the *tanka*.
- (e) The standard of silver to gold remained constant at 10 : 1.
- (f) The ratio of copper to silver in the currency of the early Sulṭāns was 80 : 1.

Apart from the decimal system of the Deccan, which may be regarded merely as a provincial accident, the subdivisions of the *tanka* followed both a trinary and a quaternary notation. This was natural enough with a 48-*ḡital* standard, and the 24-, 16-, 12-, 8-, 6-, 4-, and 2-*gānī* pieces are only to be expected. The identification of these fractions in the form of known billon coins can be made with some degree of probability, but certainty must depend on extensive and systematic assay. Even then due allowance must be made for the wide variations in composition which are inseparable from any alloy of silver and copper. This is of special importance in the matter of distinguishing between the *hashtgānī* and the *shashgānī*, each of which attained wide popularity in their day; the distinction being of particular interest to numismatists in view of the subsequent development of the currency and the total abandonment of a trinary notation, culminating in the subdivisions of the rupee obtaining at the present time.

H. NELSON WRIGHT.

6th January, 1924.

H. R. NEVILL.



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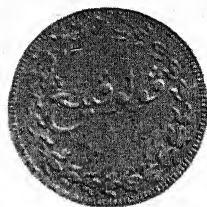
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Some Carved Stones in the Dayang Valley, Sibsagar.

By J. H. HUTTON, C.I.E., D.Sc.

In Assam there are two groups of carved menhirs, one of which is fairly well known, the other hardly at all. The former, that at Dimapur in the Dhansiri valley, was first described by Godwin-Austen in the J.A.S.B. for 1874, pt. i. The latter, that at Kasomari-pathar near Jamuguri in the Dayang valley, was only known from a very brief description by Dr. Bloch in the Report of the Archaeological Survey of India, Eastern Circle, for 1905. I have given some further account of it in the Journal of the Royal Anthropological Institute, vol. LIII (June, 1923), but that account is not complete and it is the purpose of these notes to add to it, and also to describe some adjacent remains, of which there is, as far as I know, no written record at all. These last consist of a couple of carved stones and a broad upright slab surrounded by the remains of a brick wall beside a small tributary of the Dayang, a few miles north of the Horupani Forest Rest House on that river, and about half-way between the Rest House and the Kasomari monoliths. I first heard of it from Lhota Nagas of the Naga Hills living on the outer range, who refer to it as "the Assam Raja's hand basin," and sharpen their daos on its edge.

First with regard to the Kasomari monoliths. Those carved slabs which are uprooted and fallen reveal carving below the formal patterns which seem to have been all that showed when the stones were standing erect in the ground. This carving consists, on one stone, of two pairs of domes which a Naga with me promptly, and I think correctly, decided represented breasts. It has been shown, I think conclusively enough, that the monoliths at Dimapur

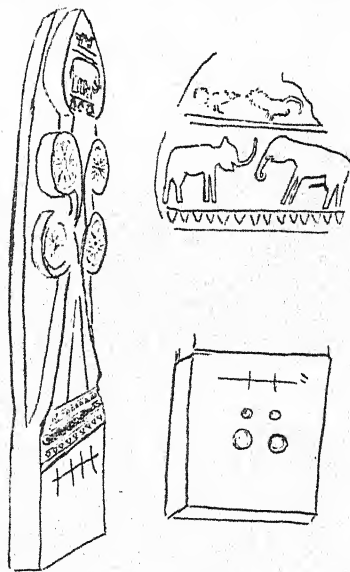


Fig. 1.

and at Kasomari (or Jamuguri) are fertility symbols,¹ and I suggest that the appearance of breasts carved at the foot of one of the latter stones indicates that these followed stones which conveyed their meaning, like those at Dimapur, by a less delicate symbolism, which was perhaps superseded by the lotus symbol under the influence of growing refinement or of some contact with a higher civilization. On the same stone

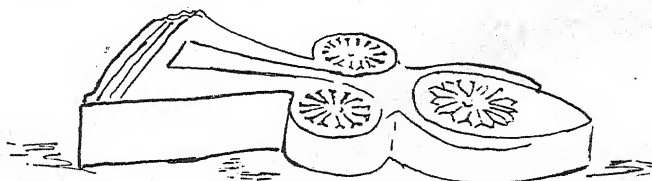


Fig. 2.

and on several others is to be seen a combination of rough incisions, one of which is horizontal and cuts across the others which are vertical. It is only possible to guess at the significance of these incisions, but I suggest that they may possibly represent a string of creeper, such as is tied by Angami Nagas round each menhir they erect, and the miniature cups and streamers of plantain leaf tucked under the creeper string and hanging down from it on the newly erected stone. It seems to me possible that the pattern on the cylindrical monoliths at Dimapur has a similar origin, as though it is symmetrical on the later stones, it is on the older stones types very much shorter above the horizontal band and very much longer below.²

There are in addition to the carved and pointed slabs at Kasomari two squared stones, one of them, a small one, still standing, the other, which is bigger, overthrown. Both have a cup-shaped hollow in the flat top which must obviously have been intended to hold some sort of liquid, and it was perhaps the shape of these stones that caused Bloch to revise in 1905 the opinion expressed in his report on the Dimapur monoliths in 1903 that the hollows at the tops of the stones were mortices for the tenons of a roof which they supported, a suggestion previously put forward by Godwin-Austen. The former of these two squared pillars at Kasomari is decorated in front with two lotus flower circles close to one another. A rough oval incision made, apparently by a later hand, beneath them causes the whole to suggest a mouth

¹ *Journal of the Royal Anthropological Institute*, vol. LII. 55 sqq., 242 sqq., LIII 150 sqq.

² See *J.R.A.I.*, LII, *Carved Monoliths at Dimapur and an Angami Naga Ceremony*.

and eyes, but if the derivation of the lotus symbol suggested above be correct, it may well have had the same origin here. The carving on the fallen squared figure, though almost obliterated, is much more interesting. It is the only representation of a human or quasi-human figure on any of the monoliths either here or at Dimapur. It represents a being with four arms and possibly, but not certainly two faces. One of the two right hands holds a leaf-shaped sword of the same description as that so frequent in the carvings

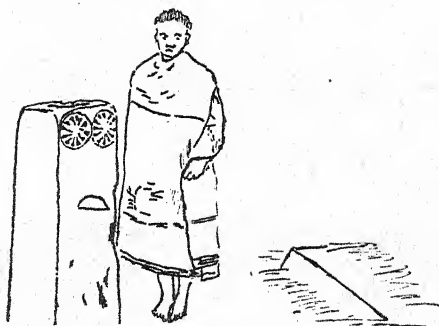


Fig. 3.

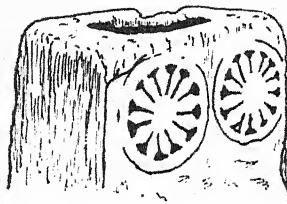


Fig. 4.

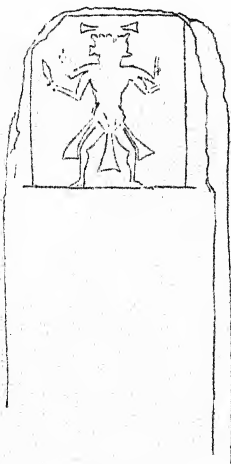


Fig. 5.

on the slabs, and on the cylindrical stone.¹ Above the head of the figure is a curious emblem shaped something like a double axe-head or trumpet. It might conceivably represent a thunder-bolt, but is to be noted that the illustrations (pp. 207, 213) in Major John Butler's *Sketch of Assam* (pubd. 1848) of Akha and Daffa chiefs show them as wearing a hair ornament of a precisely similar description, while the wooden pins worn by some of the Konyak Naga tribes in their back hair are by no means dissimilar. From the waist of the figure hang three curious appendages more or less triangular in shape one at each side and one between the straddled legs. The latter at any rate suggests the bark tail worn by Konyaks hanging from the back of their belts, while the side

¹ *J.R.A.I.*, vol. LIII, p. 153, and plates IX and X.

ones are decidedly suggestive of the very similar appendages hanging from the belt of a carved stone figure, now on the platform of Maibong Railway Station, which probably came from the palace of the Kachari kings at Maibong and presumably represents a member of the king's Naga guard, as it is represented with a cane helmet, a coiled cane belt and corrugated armlets such as Konyaks still wear. It also bears a long two-handed 'dao.' One may conclude that these appendages represent some article of dress or of defensive armour, now out of fashion, made perhaps of bark or of hide, which was then worn by the tribes inhabiting the hills and possibly the plains as well, in the neighbourhood of the Dayang valley.

To turn to the other stones mentioned, the principle one, there are only three to be seen, consists of a single block of stone carved into a sort of basin, as the Naga name for it implies, the centre of which is a simple cavity on the rim of which Nagas sharpen their daos, while outside this rim runs

a trough ending in a spout. The inner side of this trough is carved in a symmetrical pattern somewhat resembling the conventional pattern of an

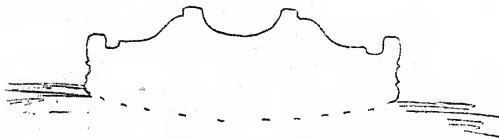


Fig. 6.

heraldic Tudor rose. I have no note of the exact measurements, but estimate that the diameter of the whole block excluding the spout is about three and a half feet, and the height about eighteen inches. Close to it is an oblong stone carved into a sort of wedge-shaped trough open at one end distinctly suggesting the shape of the ornaments worn by the four-armed being carved on the Kasomari stone or that of the large iron daos used by Konyak Nagas in paying for their brides or treasured by the Lhotas as heirlooms.¹ The third stone is an upright slab at the foot of which a hollow has been rudely excavated like that found at the foot of the cylindrical monolith at Kasomaripathar.² The upper part of the slab appears to have been broken off at a point

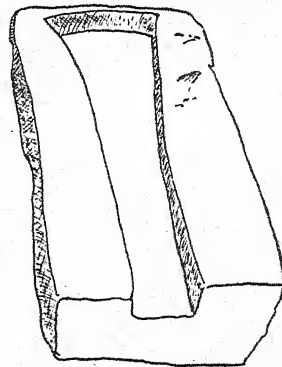


Fig. 7.

¹ See Mills, *The Lhota Nagas*, p. 16.

² *J.R.A.I.*, *loc. cit.*, p. 154 and plate IX, fig. 3.

originally pierced by two round holes carefully chiselled through the slab, the lower surfaces of which are still visible at the top of what remains of the slab. As the "basin" at any rate must have been connected with some sort of libation ceremony, it seems just possible that the two holes in this slab may have been used for pouring a libation through the wall, as is done by the Angamis in the *lisü* ceremony¹ at which they erect the wooden phallic symbols corresponding to the monoliths at Dinapur and, presumably, at Kasomari also.

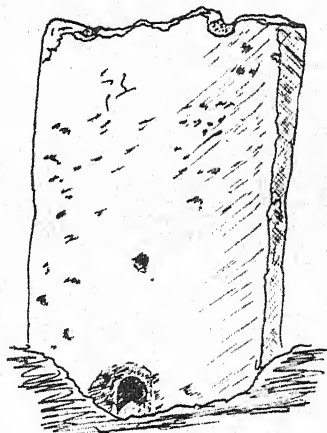


Fig. 8.

If I am correct in connecting these monolithic remains in the Dhansiri and Dayang valleys with the existing ceremonies of the Naga tribes, we may perhaps infer that the culture of the latter people is on the down rather than the upward grade, and is a decaying remnant of a civilized culture formerly established in the plains and subsequently extirpated from them by invasions which only allowed it to survive in the less desirable country and less accessible hills behind, or which absorbed it into the Tantric worship of Hinduized Assam.

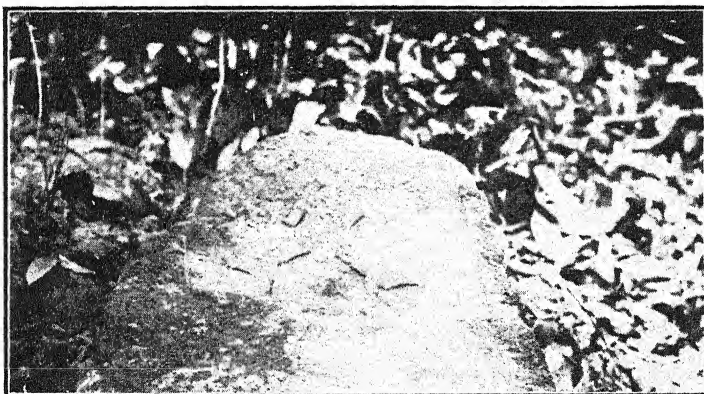
One point is possibly worth adding. In looking at the stones at Kasomari and at the "King of Assam's Hand-Basin," I was forcibly reminded of a passage in the account of India given by Ralph Fitch, who travelled through it in 1583-91. He writes as follows (of Benares):—

"And in divers places there standeth a kind of image which in their language they call Ada; and they have divers great stones carved, whereon they pour water, and throw thereupon some rice, wheat, barley, and some other things. This Ada hath four hands with claws."

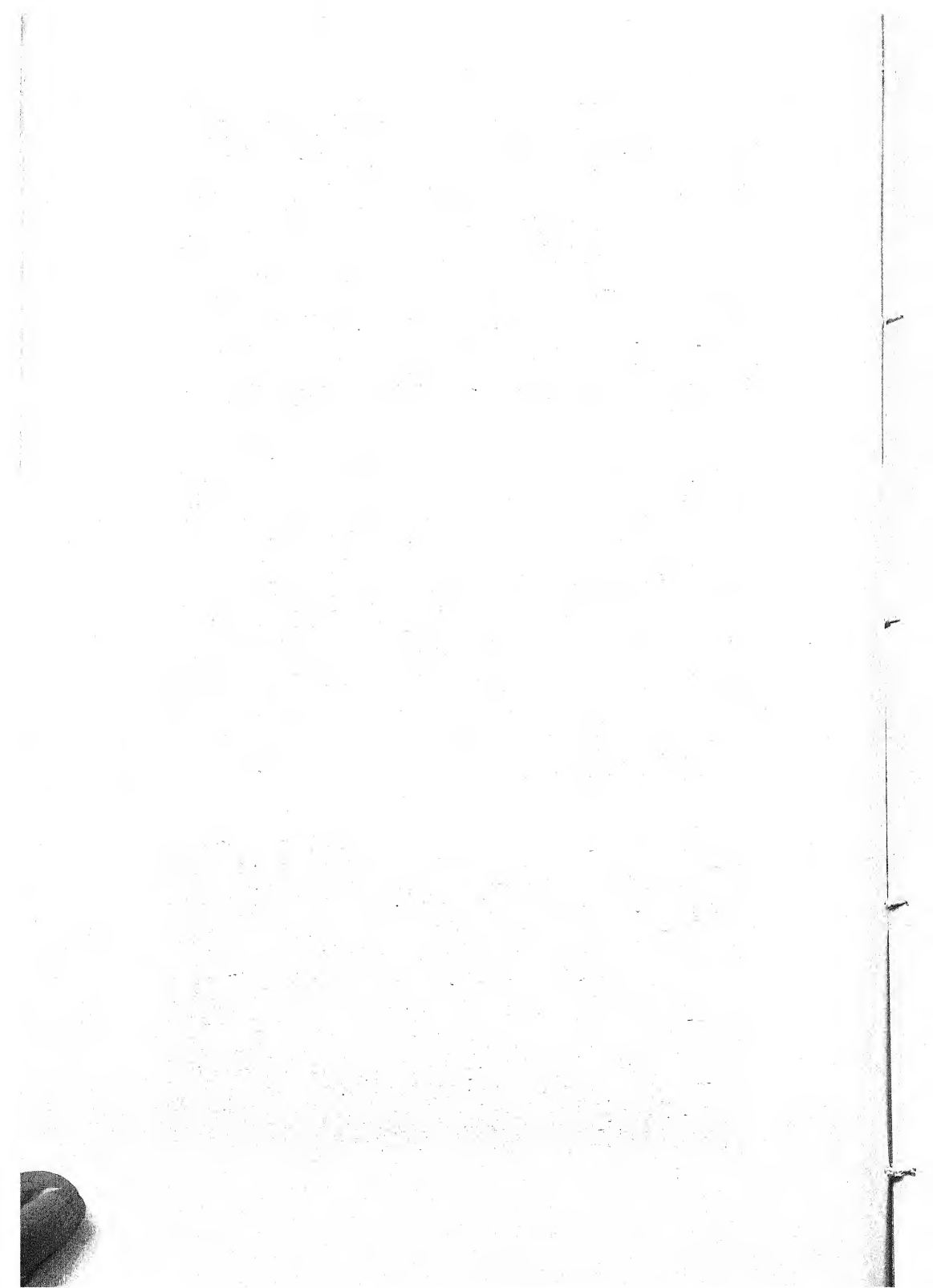
¹ *J.R.A.I.*, vol. LII, p. 68.

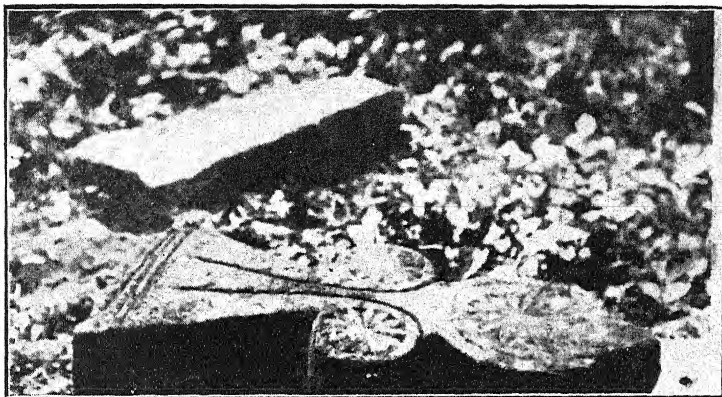


I and II. Squared stone with lotus-flower circles and hollow top.
Kasomari.



III. Squared stone overthrown; carved with quasi-human figure.
Kasomari.





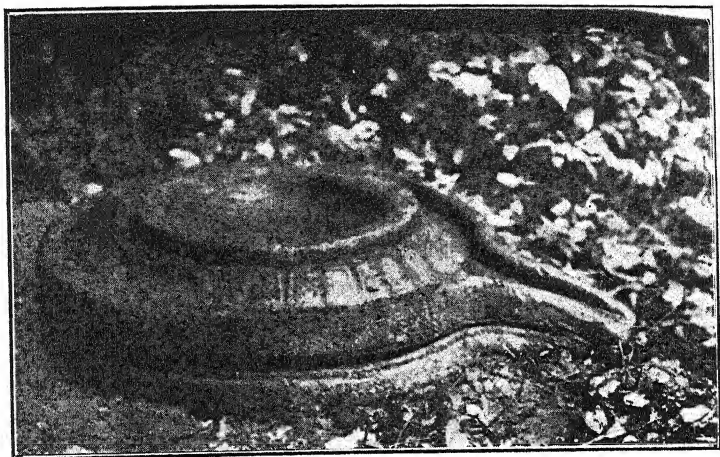
IV. Pointed lotus slab. Kasomari.



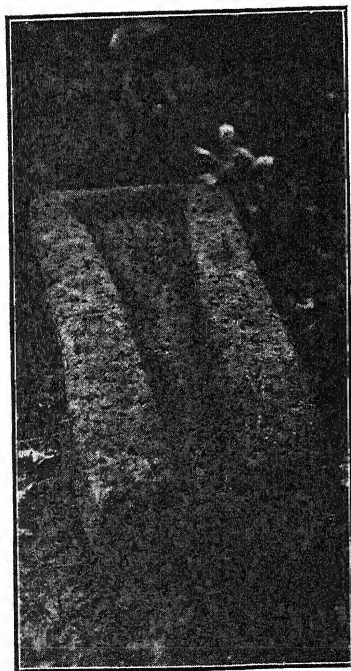
V. The stones near Horupani.



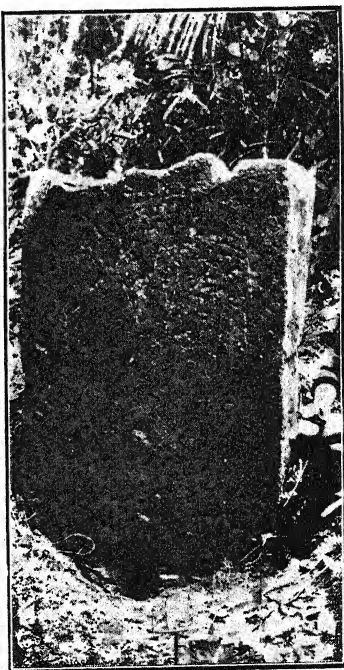
VI. "The King of Assam's hand-basin." Horupani.



VII. "The King of Assam's hand-basin." Horupani.



VIII. Oblong troughed stone at Horupani.



IX. Upright slab at Horupani.

Some Notes on the Customs of the Khasi People of Assam.

By LILY STRICKLAND-ANDERSON.

THE KHASIS OF ASSAM.

The Khasis are a peculiarly interesting people. The data of their genesis is hypothetical; they are an isolated and distinctive remnant, entirely different from the usual Assamese of Tibeto-Burman descent. Prior to 1765 the Khasis were described as "a tribe of independent Tartars" and they were characterized as savages of whom practically nothing was known. As a result of the British occupation, however, various expeditions into Assam were accomplished and statistical reports came into being from which those interested may glean the usual bare and unadorned facts contained in such writings. From time to time the Journal of the Asiatic Society has published valuable additions to the Khasi literature. "Description of Assam by Mohammed Cazim," translated by Henry Vansittart, 1787, being particularly interesting. I am also indebted to the excellent book on the subject of the Khasi Tribes by Lt.-Col. P. R. T. Gurdon, C.S.I. (1914) for much valuable information.

Going on the premises that each individual experience of a people has a fresh modicum of value I make bold to add my personal impression of the Khasis and the Khasi Hill so gathered during our recent sojourn among these folks. In spite of the fickle weather in the hills and the precarious and difficult roads of the wet season, we had the opportunity of adventuring among the more outlying districts and observing the Khasias at first hand.

The chief characteristics of this particular hill-tribes are the preservations of their ancient customs, laws and independence, through the successive generations of change around them. They still have in force a remarkable system of Matriarchy in which the mother is the tribal head, the family head and through whom the inheritance passes on name and property. The chief corner-stone of their religion is the veneration and worship of ancestors and the propitiation of spirits through sacrifice and offerings. The memorial stones which are found in large numbers in the Khasi districts, are set up in honour of the dead, the flat stones are in memory of the female head of the clan and the upright slabs are for the male members.

Their religion might be described as a form of animism

and pantheism. They differ from the polytheistic Hindu and other tribes of India in many of their religious customs. They are believers in divination by egg breaking which ancient form was observed in Rome and Hellas. These methods of fetish are still followed in the Khasi hills and form one of their quaintest customs.

Habitat.

The Khasis live in the Khasia and Jaintia Hills of Assam. I do not know the present Census but in 1911 this tribe numbered 116,865 inhabitants. The district is divided into two parts; the Khasis on the west and the Jaintias on the east, but we will confine ourselves to the Khasi hills proper where dwell the people with whom this article is concerned.

The civilized center of the Hills is Shillong, the summer seat of the Assam Government. From this charming and park-like town nestling in the gentle rises of the pine clad hills, one can settle down to the daily social round peculiar to hill stations all over India and fall into the routine of modern vacation life which is just a bit of to-day set amid the hills and people of Yesterday.

From this point, some 4,900 feet in altitude, one can, thanks to the splendid road-system, make many excursions of great interest in and around Shillong. Better still, one can leave the beaten path and wander afoot or horseback by the one-time cattle-paths that lead to the more remote sections of these beautiful hills of romance and strange history.

One can come upon some queer people and things not more than a hundred miles from the rail-road,—little thatched villages where Time has stopped and where primitive life of a distinctly different race moves on unchanged by the march of the centuries.

Appearance and General characteristics.

After the manner of most of the dwellers in the Hills, the Khasis are a muscular, sturdy, and hardy people. The Khasi up-landers are rather stocky in build with overdeveloped calves of the hill climber. Their skin varies in colour from light yellow to dark brown though at no time so dark as the people of Bengal. Some of the women have extremely pleasing brunette complexions with rosy cheeks and bright eyes that make them very attractive. The average Khasi nose is rather flat with broad nostrils, the eyes are oblique, but not so distinctly so as the more Mongolian tribes from Tibet. The hair is long and straight worn in a knot at the back or sometimes cut short or partly shaven, except for a sort of scalp-lock which is called the Gandmother's lock. The males shave their faces except for a small moustache consisting of a group of hairs on each side of the lips, with the downward Mandarin droop common to Mongols.

According to anthropological data the Khasis are prognathous as to jaw and brachy-cephalic as to skull and forehead. Their eyes are brightly brown and black and their lips are usually thick and stained a brilliant red from the constant use of betel nut.

The babies and children are as pretty and attractive as a Chinese doll, appearing happy, well-nourished, and good tempered. One seldom hears a fretful cry from these little hill dwellers, inheriting as they do a strong enduring and rather stolid nature, though capable of occasional exhibitions of temper and temperament.

The coolie is the strongest type of the Khasis, especially the women, who are trained to carry enormous loads from their youth. They climb the hill paths with a basket of coal, rocks, or provisions strapped to their heads, weighing 82 pounds and over. They are the pack-animals and road-makers of the district and one grows accustomed to seeing the little gray-cloaked women, scurrying about like squirrels on their business of road-making, themselves more drab in colour than the red earth on which they toil. They relieve the tedium of work with bits of songs or cheerful talk among themselves . . . they never seem sullen or ill disposed to strangers; they usually respond to questions with a ready smile which broadens into an audible giggle if you ask them to pose for a picture or even admire their jewellery.

They have a natural love of Nature almost a pantheistic love of it, and like to wander among the lovely pine forests where a great variety of beautiful wild flowers sprinkle the soft carpet floor of pine needles with gay splashes of colour. These hill dwellers have some vices in common with the other tribes of Indo-Chinese origin. They like betel-nut, and opium and are great drinkers of rice beer and wine, and above all they are fondest of gambling and gambling games. On the whole, however, they are a simple, athletic, undegenerate race, in spite of the old criticisms of Mohamed Cazim who describes these people as "a base and unprincipled nation, that have no fixed religion. "They do not adopt any mode of worship practised either by "Heathens or Mohammedans; nor do they concur with any of "the known sects which prevail among mankind. Unlike the "Pagans of Hindusthan, they do not reject victuals which have "dressed by Muselmans; and they abstain from no flesh except "human. They even eat animals that have died a natural "death; but in consequence of not being used to the taste of "ghee, they have such an antipathy to this article, that if they "discover the least smell of it in their victuals, they have no "relish for them. It is not their custom to veil their women: "for even the wives of the Rajas do not conceal their faces "from any person. The females perform their work in the "open air with their countenances exposed and their faces un-

“ veiled. The men have often four or five wives each, and
 “ publicly buy, sell, and change them. They shave their
 “ heads, beards and whiskers and reproach and admonish every
 “ person who neglects this ceremony. Their language has not
 “ the least affinity with that of Bengal. Their strength and
 “ courage are apparent in their looks; but their ferocious
 “ manners, and brutal tempers are also betrayed by their
 “ physiognomy. They are superior to most nations in corporal
 “ force and hardy exertions. They are enterprising, savage,
 “ fond of war, vindictive, treacherous and deceitful. The virtues
 “ of compassion, kindness, sincerity, truth, honour, good faith,
 “ shame and purity of morals have been left out of their
 “ composition.” This scathing critique as you perceive is a fine
 example of Muslim intolerance for any sect outside the pale of
 the Faithful.

Of the origin of the Khasis and the origin of their religion
 very little is actually known. According to legend these
 people migrated to the hills from elsewhere, but where? Some
 authorities say from Burma via the Patkoi mountains.

If the Khasis ever had a system of writing they lost
 it before they settled in Assam and there are no traces of
 written books or characters to preserve any historical data.
 Even the stone monoliths, which, if we understood their real
 meaning and origin, would be key to the beginnings of the
 Khasis themselves, have no inscriptions of any kind. Investi-
 gators and students are balked at every turn among these folk
 who are so individualistic and distinctly different and yet from
 whom no definite knowledge of their genesis can be obtained.

Through methods of comparative affinities, various theories
 have been formed regarding the Khasis family-tree. They are
 supposed to have sprung from the Mon-Anam family, an
 off-shoot of pre-Aryan “ Turanian origin.” Learned members
 of the F.R.G.S. have seized on the many linguistic affinities of
 the Khasis and inhabitants of Burma, as well as the Palaungs
 and Nagas whose religion is that of the ancient snake worship-
 pers and the belief in the value of the egg in divination. One
 becomes lost in the maze of speculation and finds oneself going
 in a circle. Whether these people came from China, Burma,
 and the Malay peninsulas is an interesting subject for the
 anthropologist, but that the Khasis are actually in the Assamese
 Hills is more to the point and we must be content with concrete
 facts. If their origin is shrouded in mystery, their customs
 and manners of to-day are open to the study and investigation
 of any one interested in them.

To quote the intolerant Cazim again, he says, regarding the
 dress of the Assam native, “ As they are destitute of the
 mental garb of manly qualities, they are also deficient in the
 dress of their bodies. They tie a cloth around their heads,
 and another round their loins, and throw a sheet upon their

shoulder; but it is not customary in that country to wear turbans, robes, drawers or shoes." Present day experience disproves to a large extent Cazim's accusation as to the semi-nudity of the Khasis themselves. It is true that the more aboriginal hill dwellers, from the remote and infrequently penetrated sections, such as the Lyngams, Syntengs and Wars, are more sketchily costumed, but among the proper Khasis, we insist that they were quite sufficiently dressed. In the more ancient days when Mohammed Cazim lived and wrote about the Khasis, it is likely that the customs and costumes were different, but we are dealing with the more modern native.

The male Khasi wears either a turban or a cap, an ordinary buttoned cloth coat of European influence, a dhoti or shorts; added to this they frequently use a gaily striped blanket much like the Mexican serape.

The women wear, next the person, a long cloth garment draped loosely and hanging from the shoulders; this is further reinforced with a broad strip of cloth folded crosswise like a belt and over this is worn a kind of hooded cloak which enfolds the body and serves as a head covering and is knotted over the shoulders and fastened under the chin. Ordinarily both men and women go bare-footed but in extreme weather wrap their legs in a species of leggings or puttees of cloth and grass.

The long cumbersome cloaks of the women serve as an effective means of concealing the graceful lines of their figures. The Khasi women are chiefly distinguished by their cloaks (or jainsems) which are often of pretty bright colours, but more usually a sober grey which makes them look like little nuns.

They share the common oriental love for jewellery. The women garland themselves with enormous necklaces of gold and coral beads and even the men wear these ornaments on festival occasions. The silver and gold crown or coronet is an unusual ornament and seldom seen except on the Khasi heads.

It is an especial feature of the annual dance festival. These filigreed crowns are often very ornate and ornamented with long silver and gold tassels.

Both the men and the women wear ear-rings of gold pendants circular in shape, a flat disc or plain ring being the most commonly seen. They also wear a collar along with a good collection of chains, amulets, rings, bracelets and other ornaments. These styles of jewellery are peculiar to the Khasis, being chiefly of silver and gold and not so much the coloured stones of the other tribes. There is a good deal of coral and cornelian seen but not so much of the popular turquoise matrix as one sees around Darjeeling.

The Khasi men are very fond of archery and skilful in it. Among their most common weapons are the spear, the bow and arrow, a shield and knives and swords. The shields are circular

in shape and covered with buffalo hide, the spears are sometimes six feet in length and the handle is made of bamboo. The bow is also made of bamboo, five feet high on an average; split bamboo is used for a bow-string, and for arrows the feathers of the wild vultures, geese or cranes are used. The arrow heads are of steel or iron and are home-made articles, but none the less effective.

Domestic Life and Occupations.

The Khasis may be briefly characterised as farmers and tillers of the soil. There is an extensive cultivation of rice and potatoes and of course tea, while the salubrious climate and soil lends itself to the planting and growing of many varieties of fruits and vegetables. Even as far back as 1778 the country was described as abounding in "mangoes, plantain, jacks, oranges, citrons, limes, pineapples, and punialeh, a species of amleh, which has such an excellent flavour, that every person who tastes it prefers it to the plum. There are also cocoanut trees, pepper vines, Areca trees, and the Sadij in great plenty. The sugarcane excels in softness and sweetness, and is of three colours, red, black, and white. There is ginger free from fibres, and betel vines." The writer goes on to extend his list of staples grown in Assam, but the more tropical fruits and vegetables grow in the low-lands rather than in the hills. The high grass plateaux of the Khasi hills are planted with Job's tears, maize, paddy, millet, peas, and various grains. These upland farms are manured by ashes, and ploughed by hand with a primitive hoe. Judging by the excellent vegetables which we enjoyed in the hills, we would say that the methods employed by the Khasis are quite successful even if not up to date.

Although some Assamese authorities have said that the Khasis were ignorant of the art of weaving, even our old stand-by Mohamedin Cazim deigns to admit that "They are successful in embroidering with flowers, and in weaving velvet and tautbund, which is a species of silk of which they make tents." That was many years ago, and only recently did I myself visit the Exhibition of Home Industries of Assam and see a variety of weaving, of cotton and silk cloth, striped in primitive colours, red, blue and ochre. Most of the weaving is done by the women on handlooms and we saw the actual progress of the work under the hands of skilful workers. The broad stripes of colour of geometrical designs were strangely similar to the patterns of the North American Indian, particularly the Navaho and Pueblo.

Aside from farming, two of the Khasis occupations are cattle raising and apiculture. The stock, which thrives on the long grass of the upper plateaux of the hills, is driven down to the plains to a ready market.

We got our first taste of a fine flavoured honey on our way up the hills from Gauhati, where, at the rest-houses that broke the long journey, we were served tea and buttered bread and honey. We soon learned that the delightful substance was very plentiful in Shillong and further that the Khasis go in for raising bees and producing honey which is the essence of the myriad wild flowers that furnish the flavour and quality. "The wild bee sucks" from the blossoms along the wayside and deposit his sweetness in combs in the difficult cliffs where the native has a precarious time getting it for his own use.

The domesticated bee, however, is on every side, and to show how plentiful honey has always been in the hills, the Khasis once used it to embalm their dead in! However, this custom is said to have died out, although whether a custom in India ever dies out once it has been established, is an open question.

The dwellings of the Khasis are made of wood and stone and are thatched with straw. They are small, low and poorly ventilated, having seldom more than one door or window. In the more outlying districts, they are oval in shape; their roofs sloping sharply on either side giving them the appearance of large bee-hives, the type of huts so favoured of the more unchanged primitive races. Most of the houses or cluster of huts in the country have a tall pole or two bearing some feathers of a sacrificial cock or some strange object of mystery, as a sort of totem pole flying the emblem of the family gods.

In the great earthquake of 1897 a large number of natives were crushed to death under the stones of their houses which were not built to withstand severe shocks.

Since then a lighter form of architecture has become more common, the framework of the houses being of bamboo, plastered over and whitewashed and covered with a palm thatch roof. There are many sites of deserted villages and lonely memorial stones marking a former homestead; for some of the Khasis changed their place of abode after the earthquake although more re-built their destroyed dwellings on the same site.

Among the Khasi villagers the Siem and his people dwell together in an apparently amicable form of democracy. The little villages are scattered indiscriminately among the hills with no set form of laying out a town; there is no special evidence of civic pride, although the picturesque houses with their thatched roofs blend in perfect harmony with the natural setting; and the vegetation surrounding their homes is beautiful and luxuriant. There is nothing especially offensive or sordid in the Khasi homestead, as somehow the wooded hills with the broad sweep of sky and the ever-green slopes of the pine-clad mountains fading into the dim blue of the distance, would make it impossible for anything to be ugly or repulsive. Of course the Khasis are dirty and not particular as to the niceties of

their persons and toilets, but the clean sweet breath of the pines blows free in the great spaces of the hill-tops and one can enjoy the panorama of perspective unintruded upon by the thousand smells of some of the native villages in Bengal. Of course, to be true to local colour I must admit that the not infrequent pig-sty was not a delight to the olfactories, but "pigs is pigs" and it would be asking rather too much of nature to expect her to give them the scent of Araby.

An interior inspection of the average Khasi house reveals two or three rooms furnished in accordance with the owners susceptibility to the conveniences of change. He may be a Modern and boast European beds, tables, chairs and the like; and further, if he be a christianized native, he may have his walls adorned with chromos of the Royal Family, or the religious tracts of the Missions. Incidentally the Khasis responds fairly readily to Christianity and make consistent members and faithful Church-goers. But with all due respect to the splendid work of the Welsh Missionaries among these people, I would rather stick to the natives in their natural state to give you the real flavour of the Khasis.

As to the daily menu of the Khasi people Cazim, the Mohamedan states that "This evil disposed race of mountaineers are many degrees removed from the line of humanity, and are destitute of the characteristical properties of man. They go naked from head to foot, and eat dogs, cats, snakes, mice, rats, ants, locusts and everything of this sort which they can find." As usual friend Cazim is broadly sweeping in his statements, and includes all Assamese in his accusation of carnivorous appetites.

As a matter of fact the Khasis are fairly normal in their tastes. It is true that the Naga tribes eat dogs, but they along with various tribes of Tibeto-Burman origin, have different customs and are not to be confused with the Khasis who are verily "a peculiar people."

The Khasis hunt their wild game with bows and arrows and spears or fish in their local waters for the members of the finny tribe that they find edible. They eat pork however and appreciate the succulent porcine dish which in itself is enough to earn the eternal hatred of a good Mussulman, such as Mohamed Cazim, whom we may call "the Intolerant."

The main staples of Khasi diet are rice, fruit, vegetables, grain cakes and dried fish. It is with a feeling of shame that I am compelled to admit that the Khasis do sometimes eat monkeys (the u shrih), frog-curry, and tad-pole stew and a kind of caterpillar!

There are certain foods which are taboo for no earthly reason than that they are taboo! For we cannot escape the inconsistencies of such a primitive people's private fetishes. Taboo is one of those things that no one can reasonably explain,

but we members of a modern civilized society will of course deny the existence of little whispered taboos among ourselves!

These hill tribes are good or bad drinkers, principally of rice wine and beer which is the "mountain dew" of the Khasis. They distill their own liquors and use them copiously in religious ceremonies,—but wine and religion is no new combination. Libations to the Gods are as old a custom as the Gods themselves. There is no prohibition in the Khasi hills among the unchristianized natives, and even the christianized must be sorely tempted when spirits are so plentiful and so cheap.

The principal sport of the Khasis is archery although they have other games such as discus throwing, top spinning, wrestling, jumping, racing, and games which correspond to the outdoor sports of any healthy normal boys or men.

Dancing is a very important thing among the hill men, the annual ceremonial dance being a famous occasion for both sexes. The Khasis like music and have a few rude instruments of their own the principal being the drums, flutes, horns, cymbals and a kind of guitar very like the musical instruments of other parts of India. Strange to say they are fond of playing on the Jews-harp although we do not know whether this impossible instrument was introduced into Assam by some Semetic wanderer or whether it was indigenous.

Customs and Laws.

Cazim the Intolerant has nothing good to say of the Assamese either in peace or war although he grudgingly admits the beauty of the country which these "ferocious tribes inhabit." He sees no charm in their folk stories, no quality of interest in their superstitions, denies that they have any religion, scorns their laws, ridicules their customs and despises their manners. But in spite of all this, we still hope to make you feel that these original, independent, and deeply interesting Khasis of the Hills are worth knowing and studying. We can sympathize with their wild untrammelled spirits living on the mountain tops, and preserving through the centuries their quaint racial customs and remaining an isolated remnant of some race of unknown origin.

We have mentioned that the Khasis are a Matriarchy who have preserved their unique form of government uninfluenced and unaffected by the totally different systems of tribal laws around them. The Khasi clans trace their ancestry through the female branch of the grandmother. She is highly venerated as the real head of the family and is the official boss of the household. Both property and names descend through the female side of the family. All matters of argument are taken to her for a final settlement; her word is the last word in truth. Of course the men have their functions, but since the matriarchal system has seemed to work so well as in the case of these

people, they seem content with their rating as second in command. After all they are the fathers of the families and accordingly given respect.

There is a strange affinity in the people of all hill countries; a common quality of clannishness that has originated and perpetuated the family-unit idea. Clans are the natural outgrowth of the necessity of dwellers in the high wild hill districts to stick together as one body in peace and war. The clan and feud system is still extant in our mountains in America; it exists in the Scottish highlands, in fact, in almost all countries there is a more or less similar type of Clan-families.

The marked difference in this case is that although the Siem is the official head of the Khasia villages, the oldest female of the Khasia household is the real head of the house, a sort of Lairdess as it were. However, the strongest tie in the Khasi clan idea is the common-bond and religious tie of ancestor worship.

The Khasi Siemship was formed out of a collection of various clans. The clan names are not Cameron or Campbell family names as one would suspect, but for some peculiar whim, they are called the Monkey clan, the Crab clan or some animal name or title given to the unit with no particular significance.

According to Lt. Col. Gurdon the Khasi state was formed by the "voluntary association of villages or groups of villages. The head of the Khasi state is the Siem or chief. A Khasi state is a limited monarchy, the Siem's powers being much circumscribed. According to custom, he can perform no act of any importance without first consulting and obtaining the approval of his durbar, upon which the state *Montris* sit. The Siem's principal source of income is the toll (khrong) which he takes from those who sell at the markets in his territory. The Siem is appointed from a Siem family, there being such a family in each of the fifteen Khasi states. The most important states are Khyrim, Mylliem, Cherra, Nongstoin, and Nongkhlaw."

Marriage.

The Khasi marriage system is based on two ideas, the social and the religious. The married couple live with the wife's mother, and the husband's earnings, together with those of the wife, are pooled and handed over to the mother-in-law who uses the funds as she sees fit in running the family. However a couple, having agreed to live happily together may, after having had children, separate themselves into a new family unit, not forgetting their veneration for the new "grand-mother."

Contrary to the statements of those who have gotten the Khasis and the Tibethans confused in their minds, the Khasis are neither polygamous nor polyandrous. It is a known fact

that the Khasis are monandrist. The Khasi tribe is exogamous, that is, it is forbidden that a man marry any woman who is a member of his own tribe or clan. There are a number of laws and by-laws governing the marriage of a man with his cousins or other relations, but I shall refer you to Lt. Col. Gurdon's excellent book which covers at length all matters of interest pertaining to the Khasis.

These people may be divorced for various reasons; practically the same laws as our own govern this question. A Khasi once divorced may not re-marry his wife, but may choose a new one; likewise the woman is at liberty to re-marry at her desire. In fact divorce among the Khasis is a very simple matter; one agrees to disagree, there is a public announcement of the fact that both parties are at liberty to contract new marriages, and instead of the lawyer's fee, residence at Reno, or court proceedings, there is a little ceremony of parting in the company of some family witness, and, presto, it is done. This is a very convenient system for getting around the irksomeness of the bondage of monogomy, for the quality of faithfulness is not common among the more primal and untutored tribes of this world.

In the matter of inheritance, the ancestral lands pass on down through the line of mother to daughter; in the event of the mother's death the family property is divided among her daughters or her sister's daughters. As you see the man does not figure in the question at all. He can till the soil but not own it. He however is an important factor, for of a surety the family cannot propagate without him. He therefore is respected and honoured accordingly. Instead of, as in England, the property descending to the eldest son, with the Khasis the order is reversed and the youngest daughter inherits the largest share. Upon the head of the youngest daughter also devolves the duty of performing the family religious ceremonies. If there are no girls left in the family, the Khasis adopt a daughter into the household to perform her hereditary functions of inheritor and family priestess.

War-customs.

Some of the oldest inhabitants in the Khasi district of today can be found who have personal memories and reminiscences of the skirmishes, ambushes and battles between the various Siemships. While the Khasis proper are not supposed to come under the general title of head-hunters as are the Nagas, Garos, Wars, Dyaks etc., it is true that there have been occasions when they were not above decapitating their enemies.

"Cazim the Intolerant" says that they even cut off the heads of the women whom they found in the houses of their enemies. "He who brings back the head of a slaughtered enemy, receives presents from the wealthy of cattle and spiri-

tuous liquor; and, if any captives are brought alive, it is the prerogative of those chieftains who were not in the campaign to strike off the heads of the captives."

In more recent days the Khasis about to set out on the war-path, invoke the god of War with feasting and dancing and tribal ceremonies. A cock is sacrificed and its head impaled on a bamboo pole as symbolical of the enemy heads. They send out spies to decide on the best plan of attack, and usually choose the hour of dawn to surprise a village. In the case of open battle, the enemies challenge each other with war cries before they begin to fight.

In the case of attack on native villages Cazim says that "When they reach the place to be attacked, they surround it in the night, and, at early dawn, enter it, putting to death both young and old, women and children; except such as they choose to bring away captive: they put the heads which they cut off, into leather bags; and, if the blood of their enemies be on their hands, they take care not to wash it off. When after this slaughter, they take their own food, they thrust a part of what they eat into the mouths of the heads, which they have brought away, saying to each of them: 'eat, quench thy thirst, and satisfy thy appetite: as thou hast been slain by my hand, so may thy kinsmen be slain by my kinsmen!'"

The weapons of these warriors were bows and knives. In fighting with the British at the time of the conquest or of rebellions, the native instruments of war could not of course compete with the gunpowder of a more modern foe, and so they were beaten.

Religious superstitions.

The Thlen superstition and the institution of human sacrifice goes far back into the mists of antiquity. In the old days, human victims were offered to the spirit of U Thlen the monster snake whom the people worshipped. The superstitious fear of thlens linger to this day among the Khasi tribes, and it is a popular belief among them that the thlens exist along with bhuts (devils) and evil spirits.

All superstitions are of ancient origin and the fear of snakes is a hang-over from serpent, and sun worship which Sir Wm. Jones stated was the first form of religious worship known to man. It is a matter of official record that human victims were sacrificed to the snake fetish as late as 1835 in the Jaintia hills. Human sacrifices were also made to Kali; to the Goddess of the Kopili river, and to appease evil spirits. This atrocious custom has been put down under the British rule, we hope, for ever.

Although the Khasis profess a belief in one God, U Blei Neng-Thaw or Patiyan the Creator of the Universe, they also believe that a deity inhabits every tree; that the Sun and

Moon are Gods and that there are a number of lesser Gods to be propitiated. They may be more properly described as animists or spirit worshippers. The practice of necromancy is very common and the priests or wise men, of the various tribes are well acquainted with the mysteries of incantation, divination and general black magic.

The Khasis also believe in a future life of material compensations. For the streets of gold, the milk and honey and the harp-playing of Christian orthodoxy, or the Houris of the Mohamedans, they have conceived heaven as a place where they can dwell in groves of betel-nut and chew uninterruptedly and eternally.

However, Cazim again says that "They have no idea of Heaven and Hell, the reward of the good or the punishment of bad actions; but they profess a belief that when a person dies, a certain spirit comes to seize his soul, which he carries away and that whatever the spirit promises to give at the instant, when the body dies, will be found and enjoyed by the dead but that, if any one should take up the corpse and carry it off, he would not find the treasure."

There are many spirits to be feared or revered according to their nature; there are household deities to be propitiated and sacrificed to, there are the good and evil spirits of the dead, and the gods of wealth, of water, of the state, of the village and the gods of disease.

The basis of the Khasi belief rests on Ancestor worship. The spirits of the departed are worshipped by offerings of food and drink. The death and burial customs have not changed since Cazim wrote that when a Khasi died "all his kinsmen join in killing a hog and a gayal; and having boiled the meat, pour some liquor into the mouth of the deceased, round whose body they twist a piece of cloth by way of a shroud; all of them taste the same liquor as an offering to his soul; and this ceremony they repeat at intervals for several days. Then they lay the body on a stage, and kindling a fire under it, pierce it with a spit and dry it: when it is perfectly dry, they cover it with two or three folds of cloth; and enclosing it in a little chest bury it under the ground. All the fruits and flowers, that they gather within a year after burial, they scatter on the grave of the deceased; but some bury their dead in a different manner; covering them first with a shroud, then with a mat of woven reeds, and hanging them on a high tree. Some, when the flesh is decayed, wash the bones, and keep them dry in a bowl, which they open on every sudden emergency and fancying themselves at consultation with the bones, pursue whatever course they think proper; alleging that they act by the command of their departed parents and kinsmen. A widow is obliged to remain a whole year near the grave of her husband; where her family bring

her food ; if she dies within the year they mourn for her ; if she lives, they carry her back to her house where all of her relations are entertained with the usual feast of the Khasis."

In regard to the Khasis themselves, as being different from the Syntengs and Lyngams Jaintias and other sub-divisions of the Assamese, Lt.-Col. Gurdon gives some variation to the ceremonies attending the death and burial of this particular tribe.

The body is kept for several days in the house while daily ceremonies of a religious nature are performed. Food and drink is placed by the dead, animals or a cock are sacrificed and if it is intended to bury the body, bull is sacrificed : if the body is to be burned a pig is sacrificed. There are various purifactory ceremonies and then the funeral cortege starts on its way to the plaintive music of the sharati (flutes) and drums. The pyre is lighted, with further ceremony, a parting salute of arrows is fired, and, finally the bones, which they do not allow to be calcined, are gathered and placed in the bone repository, after having been tied up in an earthen pot by the priest. Certain eatables, together with portions of the sacrificial animals are placed within the cairn and for three days thereafter food and drink is placed on top of the clam cairn and the family of the deceased is taboo during that time.

If a Khasi meet with accidental or violent death a black cock is sacrificed to Ka Tyrut, the Goddess of death. The bones of the dead are placed in three successive cairns but, unless the divination by means of eggs reveal an auspicious sign, the relatives of the deceased have to go on with the sacrificing and removing of bones. Finally, a flat stone is erected "for the ghost of the departed to sit upon."

We have mentioned the fact that the Khasis are given to the worship of natural forces and of deities. The beautiful character of the mountains, rivers and falls lend themselves to the poetic imagination and the making of folk stories. The primitive and susceptible natures of the Khasis have built up unlimited fairy stories of their lovely country. Shillong Peak, the highest mountain in the vicinity is believed to be the home of the spirit of the mountain who dwells on its summit. It has seemed a natural conception of man that the Gods should prefer to dwell in elevated places ; as Olympus and Parnass, as Valhalla and Sinai. Many of the high peaks in the Khasi and Jaintia hills are the homes of gods and godlings according to the Khasi. Consequently there are periodical festivals to these gods, pujas with offerings and sacrifices, especially the sacrifices of a black cock which is one of the most important features of Khasi religious ceremonies.

Wherever there are sacerdotal ceremonies, with offerings and sacrifices, there are priests and the Khasi clans have an

appointed high priest called the Langdoh. Besides, these official priests, every family furnishes its own lay priest for its own religious ceremonies. Each Khasi state has one or more priests whose duty it is to act as general pontifical factotem. He casts out evil spirits, assists in maintaining civic virtue, performs the sacrifices and divinations for the state, especially at the times when epidemics of infectious diseases appear.

Since the Khasis are members of a Matriarchy, all religious ceremonies are performed with the assistance of the priestess. Her presence is quite necessary, her functions important and manifold. The same old hocus-pocus of consulting the oracle is followed by the Khasis with the same seriousness with which the credulous Roman consulted his augury and practised divination by means of breaking eggs and studying of the viscera of fowls.

But far the most interesting outward expression of Khasi worship is their erection of memorial stones. The place is dotted with monoliths, some have been there from an indefinite time. These cenotaphs are placed there in memory of the dead, as they are to-day among us. The plains of Laitkor have the appearance of a great neglected grave-yard where many irregular groups of upright and flat stones perpetuate the memories of the long dead.

These stones do not mark the actual resting place of the dead, as in the case of our own grave-stones, but the bones of the dead are placed in cromlechs or cairns, often in the family cromlech where the bones of several relatives repose in a common ossuary.

The monoliths are rough uncut slabs of stone varying in height from about three feet to twenty-seven, although the average is around twelve or fourteen feet. The upright stones are called Menhirs, and are to be found in groups of uneven numbers from three to nine. We do not know the significance of this arrangement, which, however, is undoubtedly done deliberately and has some symbolism which is not understood. Besides the upright stones, there are the usual accompanying dolmens or table stones which are placed on several small supporting stones, and, lastly, there are the cromlechs, or cairns which are used for storing the bones of the dead.

At Laitkor we observed a large number of groups of stones of varying size, both upright and flat, and there also seemed to be the remains of what was once a burning platform though now so overgrown with rank weeds as to be almost invisible. The purpose of the upright memorial stones is to commemorate the male members of the family; of the flat stones, to honour the female members; although there are numbers of flat stones used as seats for the spirits, or as merely seats for human travellers. Such stones are to be seen in the market-place or burra-bazar at Shillong although we do not

know how long the stones have been there, doubtless long before the town of Shillong came into being. We have found numbers of isolated stones along the road-way, or in more remote places, plains or pine forests, that seem to belong to the distant past, but, as they are unmarked by ought save lichens, who can say?

At any rate it was quite a feat to carry these great stones and erect them in these lonely spots, for some of them weigh many tons, and they have withstood, with the exception of some of the tallest, the earthquake shocks of years to which the districts of such seismic strata have been subjected.

The instinct for ancestor worship has been a common quality of many of the early races and may have sprung from the original "old man of the family" who, assuming the authority of the official head of the family clan, exacted the respect and obedience of the younger members. The repetition of this habit soon became a custom and was the starting point for the ramifications of ancestor worship and the establishment of a deity or first One in the minds of the "dawn man."

However that may be, the Khasias who have claimed our special interest, have through the ages faithfully adhered to the custom of perpetuating the memory of the dead, and the frequent sight of these monoliths serve to act as a concrete materialization of the admonition "Lest we Forget." We feel that this was and is a good custom and bespeaks a rather admirable quality of virtue in these wild untutored people of the Khasis and Jaintia hills, and these old stones placed along the way "gave us to think," and started the echoes from an immemorial past to which we, too, are linked in the common bond of human brotherhood.

A few types of Sedentary Games prevalent in the Central Provinces.

By HEM CHANDRA DAS-GUPTA, M.A., F.G.S.

While out on a geological tour during last autumn, I collected an account of a few types of sedentary games prevalent in the Jubbulpur district, the information being gathered chiefly from a few villagers of Gosalpur (Jubbulpur). The plays about which I was able to collect detailed information are five in number and known as *Atharagutiala teora*, *dash-guti*, *gol-ekuish*, *kaooa*, and *Sat-gol*, and in this short note I propose to describe them.

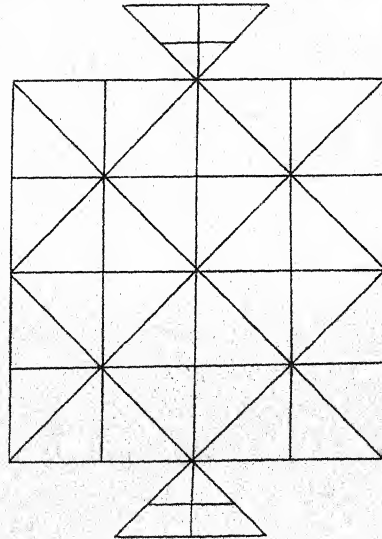


Fig. 1.

1. *Atharagutiala teora* (fig. 1).—The figure shows the diagram that is used in playing this game. It is of the same type as the *bara-guti* found in the Punjab, a description of which has already been published.¹ Same rules are observed in both these games, while the chief distinction between them lies in the fact that the two triangles found in the diagram of *Atharagutiala teora* are non-existent in *bara-guti*.

¹ Calcutta Review, March 1923 pp. 510-513.

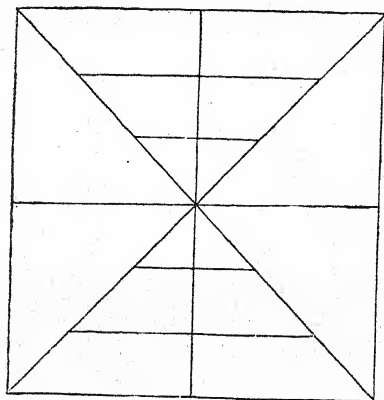


Fig. 2.

2. *Dash-guti* (fig. 2).—The diagram for playing this game is shown above. It has some similarity with the *bara-guti* diagram in having the main square outline, the two diagonals, and the two lines joining the middle points of the opposite sides of the square, while in the tri-section of the diagonals and the drawing of the lines joining the points of tri-section as shown in the figure, it recalls the type of diagram used in a Bhandara game.¹ There is nothing new regarding the number of capture and the movement of the pieces.

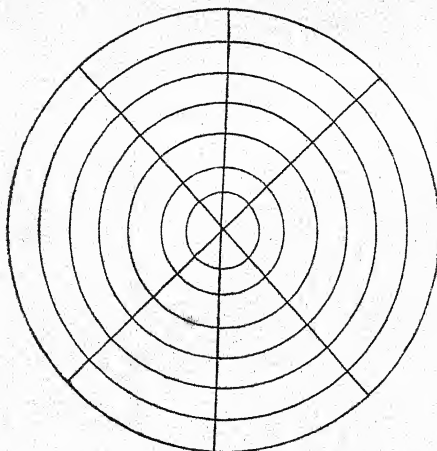


Fig. 3.

¹ For a summary of the paper describing this game see Proceedings of the tenth Indian Science Congress, p. 235, 1924.

3. *Gol-ekwish* (fig. 3).—As is shown in the figure seven concentric circles with three diameters are required for playing this game, the diameters meeting the circles at 42 points. Two persons are required for playing this game, and each of them provides himself with 21 ballets which are placed at the 21 cross-points arranged along 3 consecutive radii. The rules of the game are practically the same as are observed in the case of *bara-guti* or similar other plays, the only important point to be noted is that in this game ballets may be moved not only along the radii or diameters, but also along the arcs or the circumferences. The ballets belonging to the 2 players are necessarily of two different types.

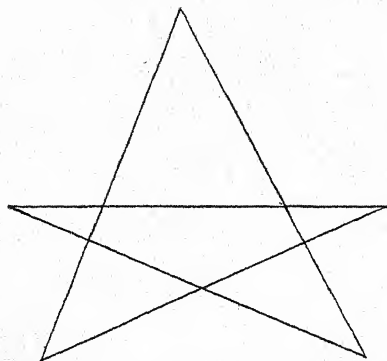


Fig. 4.

4. *Kaooa* (fig. 4).—This is a peculiar type of tiger play and, as the figure shows it, seven *kaoos* and one tiger are necessary for the game. Two players are required for the game; the player with the *kaoos* tries to checkmate the tiger, while the player with the tiger attempts at capturing all the *kaoos* by jumping over them according to the ordinary rules of the tiger play. This type of tiger-play is rather interesting, and differs from the type of tiger-play prevalent in Bengal and Orissa in which the number of goats or ballets may be 24, 20, 12 or 3, while the number of tiger may be 1, 2 or 4.

5. *Sat-gol* (fig. 5).—As the accompanying figure shows it, the diagram required for this play consists of seven circles and two persons are necessary for playing it. Four pieces of stones are kept within each circle and, at the commencement of the play, one of the players takes out the 4 pieces of stones lying within one of the circles and begins dropping them successively within the different circles working anti-clockwise, only one being dropped within one circle. After the last piece had been dropped within one of the circles, the pieces lying within

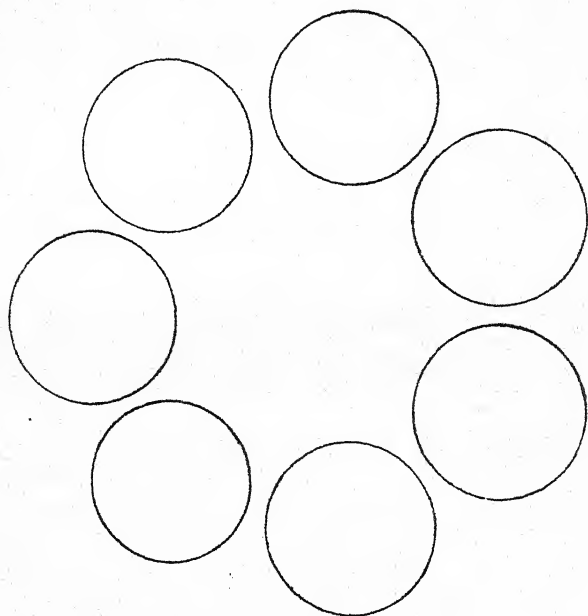


Fig. 5.

the next circle would be taken out and dropped successively within the different circles as 'before. This continues until the player drops his last piece within a circle next to which there is an empty one, and then he will be in possession of the pieces lying within the circle immediately next to the latter. The play will be now begun by the other person who will take out the pieces lying within the circle next to the one from which the pieces had been removed by his adversary and proceed exactly like the previous player. Whenever a player succeeds in capturing the pieces lying within a circle immediately next to any empty one, or comes to an empty circle with one or more empty circles next to it, he shall have to stop, and the play will be commenced by his adversary with the pieces lying within the first circle next to the one, the pieces from which have all been captured by the previous player, or within the circle lying immediately after the last empty circle, the movement being in all cases against the hands of the watch. The play will go on in this way, and the player who captures the larger number of pieces will be considered to be victorious.

A careful study of this game will at once show the similarity that exists between it, and the Khasia game known as *Mawkarkatya*,¹ and a few other games allied to it, and a descrip-

¹ Journ. Asiatic Soc., Bengal, N.S., Vol. XIX, pp. 71-74, 1924.

tion of which has already been published. The Jubbulpur game, however, appears to be an extremely primitive form of the game prevalent in the Assam hills, Orissa and Madras Presidency.



Physical Characteristics of the Hos of Kolhan.

By D. N. MAJUMDAR, M.A.

This paper contains a preliminary survey of the physical characteristics of the Hos, based on 10 anthropometrical measurements of 200 individuals.

Short stature, dark complexion, short, broad and flat nose, small, dark eyes, wavy to curly hair, beard or moustaches absent, are some of the physical characters of the Hos of Kolhan. The complexion varies from sooty black to dark brown, but often one meets with fair Hos. This may possibly be traced to the fair Rajput traders who tour throughout the district with articles of daily use. The chin is narrow and the lips are medium. Slight prognathism is noticeable. Ears are small and finely developed. Slanting eyes are scarcely noticeable. Formerly they practised tattooing, but the custom has fallen out of favour. Where tattooing is practised, only the fore-limbs, especially the right hand is tattooed. The belief connected with the practice is, that if a woman does not tattoo, she commits a sin, for nothing goes with her to the next world but these marks on the limbs. They do not chip their teeth.

Anthropometry.

Measurements were taken of 200 Hos of different septs and localities, and their cranial, nasal and facial indices worked out. Care has been taken to group the subjects on the basis of homogeneity, *i.e.*, the samples taken for anthropometric tests have common social standards and common traditional origins. For example, the Hos believe that the members of a sept are descended from a common ancestor and marriage is forbidden between them. A man of the Banra sept will not marry a girl of the same sept but of a different sept, say the Kalundi or the Deogam. So as regards tradition and social standing each sept is homogeneous, and for this purpose I have recorded the tests of each sept separately. Another important point to be noted is the possible error in measurements which may be called personal errors. However accurate the field-worker may be, such errors are inevitable, for the conditions of field work do not allow time enough to record the measurements in a way possible in the laboratory. When one has to finish a dozen or more tests in 15 minutes, it is not possible to apply one's instrument a second time to verify the first record. But this can be remedied to some extent, if we

take a sufficiently large number of subjects of each group, measure them, deduct the personal error which may be ascertained by the laboratory method, and then work out the average. For example, if the first record of head length of an individual be 18.1 cms, the second record, 18.2 cms, the third record, 18.3 cms, the mean record must be 18.2 cms. But instead of making three observations on the same individual, we take three individuals and get the records 18.1 cms, 18.2 cms, 18.3 cms, deducting the personal errors, we may arrive at the same average, *i.e.*, 18.2 cms for the head-length. For field work the second method is the only method possible, for we cannot make a subject submit to anthropometric tests for 45 minutes.

The comparative anthropometry of some 140 Hos of 11 different septs is given below. It is evident from the table, that the greater the number of subjects in a group, the more the average agrees with the general physical appearance of the tribe. The average indices for the Banra sept of which 44 subjects were measured are, cephalic, 73.6, nasal, 79.1, facial, 92.3, whereas the average indices for the Jamuda sept of which only two subjects were available for measurement are cephalic, 77.9, nasal, 74.6, facial, 90. Again only two subjects were measured of Bansia sept, and they gave the following average indices, cephalic, 79.4, nasal, 80.3, facial, 93.1. So, in order to arrive at valid conclusions, on the result of averages, there must be a fair number of subjects in each group.

Cephalic Index.

Of the 200 measurements taken, 63 per cent. were found to be dolichocephalic, 47 per cent. mesocephalic, and 12 per cent. brachycephalic. The head-length was measured from glabella to opisthocranium, the point in the median sagittal line of the occiput, which is the farthest point from the glabella. The width was measured between the euryons, the most laterally projecting points on the sides of the head above the Supramastoid and zygomatic crests. The average cephalic index for the Hos is 75.5. The Honhaga sept has the lowest average cephalic index, *i.e.* 73.0 and the Bansia the highest, 79.4. The Baura has 73.6, the Sawaia, 74.3, the Kalundia, 74.7, the Baraimunda, 74.7, the Deogam, 75.2, the Hembrom, 75.9, the Purty, 76.3, the Jamuda, 77.9. Cases of artificial deformation of the head were noticed in the interior of Kolhan. A young man was seen with a well-marked fronto-occipital deformation which showed a lateral increase in the shape of the head. Another was seen with an occipital flattening, the tendency of which is to shorten the head in the antero-posterior direction. The custom of manipulating the head of newborn babies is much prevalent amongst the aborigines, and it is to be ascertained

whether this manipulation of the head, when the bones are in process of ossification, has anything to do with the moulding of the head form.

Nasal Index.

The length of the nose was measured from the nasion, *i.e.*, the point in the median sagittal line where the nasal bones join the frontal bone, to the sub-nasal, *i.e.*, the point where the septum of the nose joins the upper lip. The breadth was measured from alare to alare, *i.e.*, the laterally projecting points on the wings of the nose or nostrils. The point corresponding to the nasion is very vaguely defined and in many instances difficult to find.

The width of the nose is taken at the widest point on the alae by some observers, and at the point where the nose joins the face, by others. As the measurements of both dimensions are very small any small error of observation, seriously affects the average. To add to it, there is the custom of pressing the nose upwards with the fingers against the sides, and of pressing the finger against the hard palate to elevate the long septum of the palate so as to rectify any depression in the bridge of the nose. To come to the averages, the Honhaga sept has the highest nasal index, *i.e.*, 91.1, the Jamuda the lowest, *i.e.*, 74.6. The nasal indices are for the Banra, 79.1, the Kalundia, 77.5, the Deogam, 79.5, the Hembrom, 81.2, the Bansia, 80.3, the Sawaia, 76.0, the Baraimunda, 77.5, the Purty, 78.7, the Lagauri, 86.6.

Facial Index.

The face-length was measured from glabella to gnathion, the lowest point in the middle of the bony chin. The face-breadth was taken as the distance between the zygions, *i.e.*, the most laterally projecting points on the two zygomatic arches. The head-height was measured from bregma, *i.e.*, the point on the head where the frontal bone meets the two parietal bones, to the right earhole. As regards the facial index, the Lagauri sept has the lowest index, *i.e.*, 87.9, while the Kalundia has 94. The facial indices are for the Banra, 92.3, the Deogam, 93.1, the Hembrom, 93.0, the Bansia, 93.2, the Sawaia, 93.2, the Honhaga, 89.1, the Jamuda, 90, the Baraimunda, 89.3, the Purty 90.0.

Stature and Arms' Reach.

The average stature is about 161 cms. The Bansia sept has the lowest stature (average for the sept), *i.e.*, 158.2 cms, while the Sawaia sept has the highest average stature 164.0 cms, and individuals measure 170 cms. or more. The average stature for the Kalundia sept is 161.7 cms., the Deogam, 161.8

cms., the Hembrom, 160.1 cms., the Jamuda, 161.1 cms., the Baraimunda, 159.8 cms, the Purty, 163.7 cms, the Honhaga, 159.5 cms, the Lagauri, 163.6 cms, and that for the Banra is 160.5 cms. At the age of 30 a Deogam was measured to be 177 cms, at the age of 55 a Hembrom measured 149.4 cms. only. So the Hos are below the average as regards stature. The maximum average arms' reach, *i.e.*, 173.5 is noticeable in the case of the Sawaia sept, while the Honhaga sept has only 166.6 cms. The arms' reach is proportionate to the stature, the higher the stature, the greater is the arms' reach, and the difference between the stature and the arms' reach of a man ranges from 7 to 9 cms. The Bansia has an average arms' reach of 169.7 cms, the Lagauri has 172.8 cms, the Baraimunda, 167.9 cms, the Purty, 172.2 cms, the Hembrom, 168.6 cms, the Jamuda, 168.0 cms, the Deogam, 171.0 cms, the Kalundia, 172.0 cms, the Banra, 169.3 cms. The average arms' reach for all the septs is 169.9 cms.

Sept Honhaga.

| Name. | Native Village. | Age. | Stature. | A.R. | H.L. | H.B. | N.L. | N.B. | F.L. | F.B. | H.H. | N.C. |
|---------------|-----------------|------|----------|-------|------|------|------|------|------|------|------|------|
| Honhaga Miran | .. Sindri .. | 16 | 157.1 | 160.3 | 18.2 | 13.8 | 4.3 | 3.6 | 11.1 | 12.4 | 12.3 | 71 |
| " Subdia | .. Sonara .. | 17 | 157.8 | 166.3 | 19.3 | 13.7 | 4.3 | 4.6 | 11.1 | 13.3 | 12.7 | 78 |
| " Bhagirath | .. Bisai .. | 17 | 163.5 | 173.3 | 19.3 | 13.9 | 4.9 | 4.2 | 12.4 | 13.2 | 13.9 | 77 |
| | Average: .. | .. | 159.5 | 166.6 | 18.9 | 13.8 | 4.5 | 4.1 | 11.5 | 12.9 | 12.9 | 75 |

Sept Bansia.

| | | | | | | | | | | | | |
|-----------------|-------------|----|-------|-------|------|------|-----|-----|------|------|------|----|
| Bansia Moton .. | .. Chiru .. | 18 | 155.5 | 169.2 | 17.8 | 14.2 | 4.6 | 3.9 | 12.5 | 13.3 | 11.2 | 79 |
| " Mohendra | .. " .. | 48 | 161.0 | 170.3 | 18.2 | 14.4 | 5.6 | 4.4 | 12.8 | 13.6 | 13.0 | 84 |
| | Average: .. | .. | 158.2 | 169.7 | 18.0 | 14.3 | 5.1 | 4.1 | 12.6 | 13.4 | 12.1 | 81 |

Sept Lagauri.

| | | | | | | | | | | | | |
|--------------|--------------|----|-------|-------|------|------|-----|-----|------|------|------|----|
| Turi Lagauri | .. Bogaabari | 19 | 165.7 | 171.0 | 18.4 | 14.7 | 4.3 | 4.2 | 11.3 | 13.0 | 13.3 | 80 |
| Gopra " | .. " .. | 28 | 161.6 | 174.7 | 18.3 | 14.0 | 4.7 | 3.7 | 12.1 | 13.7 | 12.2 | 84 |
| | Average: .. | .. | 163.6 | 172.8 | 18.3 | 14.3 | 4.5 | 3.9 | 11.7 | 13.3 | 12.7 | 82 |

Sept Sawaria.

| | | | | | | | | | | | | |
|--------|----------------|----|-------|-------|------|------|-----|-----|------|------|------|----|
| Nripat | .. Khaspukuria | 20 | 160.9 | 170.6 | 19.5 | 13.9 | 5.0 | 4.3 | 12.3 | 13.2 | 13.0 | 80 |
| Dubro | .. Rajabasa | 26 | 159.0 | 171.8 | 18.9 | 14.4 | 4.8 | 3.6 | 11.5 | 13.3 | 12.9 | 77 |
| Uli | .. Hitu .. | 30 | 167.0 | 171.7 | 17.7 | 13.5 | 4.7 | 3.7 | 11.8 | 13.2 | 12.5 | 82 |
| Hai | .. Kokchak | 35 | 170.4 | 186.9 | 17.4 | 14.9 | 5.5 | 4.1 | 12.7 | 13.5 | 12.6 | 78 |
| Siva | .. Gumar .. | 35 | 168.6 | 170.2 | 18.6 | 13.5 | 4.9 | 3.9 | 11.9 | 13.4 | 12.2 | 83 |
| Jau | .. Kokchak | 45 | 157.4 | 166.6 | 19.6 | 14.0 | 5.9 | 3.8 | 12.8 | 13.3 | 13.0 | 88 |
| Gora | .. Gundepoa | 55 | 165.2 | 177.0 | 19.8 | 13.4 | 5.3 | 3.8 | 14.3 | 13.6 | 12.6 | 83 |
| | Average: .. | .. | 164.0 | 173.5 | 18.7 | 13.9 | 5.0 | 3.8 | 12.4 | 13.3 | 12.6 | 81 |

Sept Baraimunda.

| Name. | Native village. | Age. | Stature. | A.R. | H.L. | H.B. | N.L. | N.B. | F.L. | F.B. | H.H. | N.C. |
|----------|-----------------|------|----------|-------|------|------|------|------|------|------|------|------|
| Pradhan | .. | 22 | 161.5 | 168.7 | 18.8 | 13.6 | 4.8 | 3.9 | 11.5 | 13.0 | 13.0 | 79 |
| Raman | .. | 24 | 153.0 | 161.4 | 18.6 | 13.6 | 4.1 | 3.8 | 11.6 | 12.9 | 12.5 | 75 |
| Muchia | .. | 35 | 152.6 | 163.5 | 17.2 | 13.3 | 4.6 | 3.7 | 11.2 | 13.0 | 12.1 | 81 |
| Saban | .. | 35 | 162.5 | 171.3 | 18.4 | 14.0 | 5.4 | 3.4 | 11.7 | 13.5 | 13.1 | 77 |
| Lakan | .. | 36 | 161.5 | 171.9 | 17.6 | 13.7 | 4.8 | 3.8 | 11.6 | 12.9 | 11.1 | 80 |
| Modhua | .. | 38 | 154.8 | 160.4 | 19.4 | 13.8 | 4.9 | 3.6 | 12.0 | 13.1 | 13.2 | 82 |
| Birsingh | .. | 40 | 152.0 | 160.3 | 18.3 | 13.6 | 5.0 | 4.2 | 11.5 | 13.7 | 12.0 | 78 |
| Modhua | .. | 45 | 155.6 | 160.0 | 17.6 | 14.0 | 4.7 | 3.8 | 12.4 | 13.4 | 12.9 | 84 |
| Maraki | .. | 48 | 169.9 | 173.8 | 18.5 | 13.6 | 5.1 | 4.5 | 12.6 | 13.4 | 12.5 | 81 |
| | Average: | .. | 159.8 | 167.9 | 18.2 | 13.6 | 4.9 | 3.8 | 11.7 | 13.1 | 12.4 | 79.6 |

Sept Party.

| | | | | | | | | | | | | |
|------------|----------|----|-------|-------|------|------|-----|-----|------|------|------|----|
| Juria | .. | 17 | 167.5 | 178.3 | 18.0 | 14.6 | 5.1 | 3.5 | 11.5 | 13.2 | 12.8 | 71 |
| Ghanashyam | .. | 18 | 166.3 | 173.4 | 18.2 | 13.9 | 4.3 | 4.0 | 11.2 | 12.8 | 12.0 | 82 |
| Surji | .. | 34 | 161.8 | 174.4 | 19.0 | 13.5 | 4.8 | 3.5 | 12.2 | 13.3 | 12.0 | 77 |
| Dibai | .. | 35 | 166.1 | 175.8 | 18.7 | 13.9 | 5.0 | 3.8 | 12.6 | 13.2 | 12.3 | 84 |
| Damu | .. | 45 | 157.0 | 159.3 | 17.1 | 13.9 | 4.5 | 3.9 | 11.5 | 13.0 | 13.1 | 77 |
| | Average: | .. | 163.7 | 172.2 | 18.2 | 13.9 | 4.7 | 3.7 | 11.8 | 13.1 | 12.4 | 78 |

Sept Hembroma.

| | | | | | | | | | | | | |
|----------|----------|----|-------|-------|------|------|-----|-----|------|------|------|----|
| Aniu | .. | 17 | 171.7 | 172.6 | 19.0 | 13.5 | 5.1 | 3.4 | 12.0 | 12.6 | 12.6 | 78 |
| Bike.. | .. | 17 | 157.7 | 168.3 | 17.1 | 14.4 | 4.6 | 4.0 | 11.7 | 13.2 | 11.5 | 76 |
| Mohendra | .. | 17 | 158.3 | 169.0 | 17.8 | 14.5 | 4.7 | 4.2 | 12.2 | 13.8 | 11.6 | 76 |
| Roga | .. | 28 | 158.0 | 169.3 | 18.8 | 14.3 | 4.9 | 3.5 | 12.3 | 13.5 | 12.3 | 78 |
| Kaloman | .. | 38 | 165.9 | 175.7 | 19.0 | 13.5 | 5.0 | 3.8 | 12.0 | 12.2 | 12.0 | 76 |
| Mati.. | .. | 30 | 158.5 | 165.0 | 18.0 | 13.6 | 4.8 | 3.8 | 12.5 | 12.8 | 12.9 | 80 |
| Durga | .. | 42 | 164.1 | 168.7 | 18.8 | 13.6 | 4.4 | 4.4 | 11.9 | 12.8 | 11.8 | 78 |
| Miorai | .. | 44 | 158.7 | 167.1 | 17.9 | 13.5 | 5.3 | 4.0 | 12.5 | 12.8 | 10.2 | 76 |
| Kanda | .. | 55 | 149.4 | 161.9 | 18.2 | 14.2 | 5.2 | 4.0 | 12.0 | 13.3 | 11.3 | 72 |
| | Average: | .. | 160.1 | 168.6 | 18.3 | 13.9 | 4.8 | 3.9 | 12.1 | 13.0 | 11.8 | 76 |

Sept Jamuda.

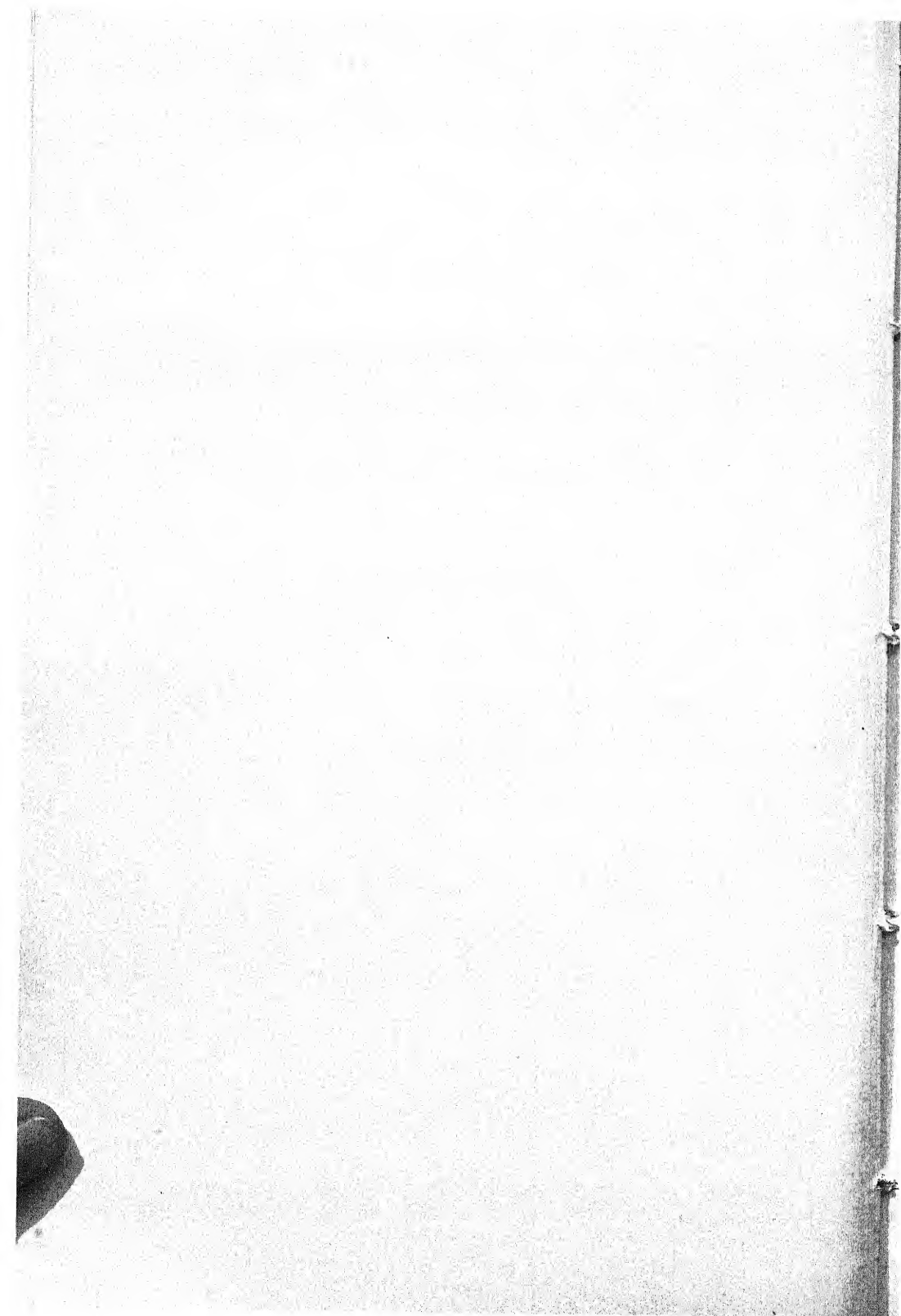
| Name. | Native Village. | Age. | Stature. | A.R. | H.L. | H.B. | N.L. | N.B. | F.L. | F.B. | H.H. | N.C. |
|----------|-----------------|------|----------|-------|------|------|------|------|------|------|------|------|
| Kara | .. | 16 | 155.8 | 161.0 | 18.2 | 13.7 | 4.4 | 3.6 | 11.2 | 12.7 | 13.7 | 74 |
| Bursinha | .. | 46 | 166.5 | 175.0 | 18.1 | 14.6 | 5.1 | 3.5 | 12.0 | 13.2 | 12.2 | 79 |
| | Average : | .. | 161.1 | 168.0 | 18.1 | 14.1 | 4.7 | 3.5 | 11.6 | 12.9 | 12.9 | 76.5 |

Sept Deogam.

| | | | | | | | | | | | | | |
|----|----|----------|----|-------|-------|------|------|-----|-----|------|------|------|------|
| .. | .. | .. | 18 | 159.7 | 108.8 | 17.5 | 13.6 | 4.6 | 3.6 | 11.4 | 13.0 | 11.6 | 74 |
| .. | .. | Dumbisai | .. | 156.7 | 105.0 | 18.2 | 13.1 | 4.5 | 3.4 | 12.4 | 12.6 | 11.1 | 77 |
| .. | .. | " | .. | 167.2 | 181.0 | 18.0 | 13.3 | 4.6 | 4.3 | 12.1 | 12.9 | 12.0 | 85 |
| .. | .. | " | .. | 166.0 | 177.5 | 18.5 | 13.6 | 4.7 | 4.3 | 11.2 | 12.7 | 13.0 | 77 |
| .. | .. | " | .. | 165.0 | 178.2 | 19.1 | 13.7 | 5.3 | 3.7 | 13.5 | 13.6 | 12.2 | 83 |
| .. | .. | " | .. | 158.0 | 162.7 | 18.5 | 13.9 | 4.9 | 3.3 | 11.7 | 12.8 | 11.8 | 77 |
| .. | .. | " | .. | 169.2 | 178.4 | 18.4 | 14.3 | 5.0 | 4.4 | 12.2 | 13.5 | 12.0 | 78 |
| .. | .. | " | .. | 156.0 | 167.2 | 17.5 | 13.2 | 4.8 | 3.6 | 11.6 | 12.6 | 11.6 | 80 |
| .. | .. | " | .. | 163.8 | 172.0 | 19.1 | 13.7 | 4.9 | 3.9 | 12.5 | 13.2 | 12.9 | 79.5 |
| .. | .. | " | .. | 163.8 | 167.2 | 18.3 | 13.7 | 4.7 | 4.0 | 12.5 | 13.4 | 12.0 | 85 |
| .. | .. | " | .. | 157.3 | 162.7 | 18.8 | 13.6 | 5.2 | 4.0 | 12.0 | 13.1 | 11.6 | 79 |
| .. | .. | " | .. | 150.8 | 159.0 | 17.5 | 13.7 | 5.2 | 3.7 | 12.0 | 13.0 | 12.6 | 82 |
| .. | .. | Kanjia | .. | 177.5 | 187.5 | 18.4 | 14.2 | 4.9 | 3.9 | 12.8 | 13.7 | 13.1 | 86 |
| .. | .. | Dumbisai | .. | 165.0 | 174.3 | 18.2 | 14.7 | 4.8 | 4.2 | 12.3 | 13.7 | 12.7 | 88 |
| .. | .. | Kokchak | .. | 159.0 | 178.7 | 18.4 | 13.5 | 4.9 | 4.1 | 12.1 | 13.7 | 12.2 | 84 |
| .. | .. | Kanjia | .. | 160.0 | 174.3 | 18.4 | 13.5 | 4.8 | 3.8 | 12.8 | 13.5 | 11.8 | 80 |
| .. | .. | Banandia | .. | 162.0 | 170.6 | 18.3 | 13.8 | 5.7 | 3.8 | 12.8 | 13.5 | 11.8 | 80 |
| .. | .. | Dumbisai | .. | 164.2 | 169.5 | 18.0 | 14.4 | 5.0 | 4.0 | 12.8 | 13.6 | 12.8 | 82 |
| .. | .. | " | .. | 163.1 | 168.8 | 17.8 | 13.7 | 5.0 | 4.0 | 11.8 | 12.8 | 11.8 | 77 |
| .. | .. | " | .. | 157.0 | 163.6 | 17.8 | 14.1 | 4.8 | 3.8 | 11.6 | 13.4 | 11.0 | 72 |
| .. | .. | Chiru | .. | 156.4 | 168.6 | 18.7 | 13.7 | 5.8 | 4.9 | 12.8 | 13.1 | 12.1 | 76 |
| .. | .. | Dumbisai | .. | 161.8 | 171.0 | 18.2 | 13.7 | 4.9 | 3.9 | 12.2 | 13.1 | 12.0 | 79 |
| .. | .. | Average: | .. | 161.8 | 171.0 | 18.2 | 13.7 | 4.9 | 3.9 | 12.2 | 13.1 | 12.0 | 76 |

Sept Kalundia.

[illegible]



Some of the characteristics of Kolarian Songs.

By D. N. MAJUMDAR, M.A.

The songs of the Hos or Kols, may be grouped under four well defined heads :—

1. General songs, depicting general ideas, the economic conditions of the people. the principles of living, etc.
2. Love songs.
3. Moral songs, through which the poet wishes to impart moral instructions to the people. Moral songs may be subdivided into two groups—
 - (a) those addressed to young men,
 - (b) those addressed to young women.
4. Miscellaneous songs, which mostly relate to domestic affairs, articles of food, etc.

There are a few songs which may be taken as commemorating some fights in early times all of which refer to 'Bundu' and 'Tamara.' These two places are in the Ranchi district, but definite historical evidence about fights is lacking. Usually reference is made to these two places in Ba and Jadur songs. This may be due to the fact that Ba and Jadur dances and songs are imported from 'Bundu' and 'Tamara.' They do not originally belong to Singbhum. Ba and Jadur songs also contain words or sentences of 'Bundu' and 'Tamar' people. The following song may be quoted as an example :

(1)

noko kore go ko thupunz, tana
 bunduko topo do rara rurua
 chema kore go ko mapa, tana
 sare kapi do jilab jolob
 bundu pirire ko thupunz, tana,
 bunduko topo do rara rurua,
 tamara badi reko mapa tana,
 sare kapi do jilab jolob.

English translation :

Where are the people shooting one another ?
 The guns and cannons are roaring.
 Where are the people striking one another ?
 The arrows and axes are glittering.
 People are shooting one another in the Bundu field.
 There the guns and cannons are thundering.

People are striking one another in the Tamara field.
There the arrows and axes are glittering.

1. *General songs.*

The Hos are a happy-go-lucky people. The following song reflects to a great extent their mentality.

(2)

Maghe.

rasikana ba somdi,
 nen jibon mena reba rasikana kong
 nen jibon mena reba rasikana kong
kabu nameya samdi,
 nelekan rasika do kabu nameya kong
 nelekan rasika do kabu nameya kong
kabu tarina somdi,
 nole hasa leka do kabu tarina kong
 buru daru leka do kabu sagouoh kong

English translation :

Let us be merry my dear.
 Be merry as long as this life lasts.
We shall not find,
 We shall not find such joy.
We shall not live for ever, my dear,
 Like the earth we shall not be lasting.
 Like trees we do not shoot out into new leaves.

This song gives a true picture of Ho life. Outside engagements may require a Ho to toil hard from morning till evening but he must turn up punctually at the village akhara after his evening meal, and he must take part in the village dance every night. Cares and anxieties he seems to have none. Usually he does not think about the future, but improvident as he is, he has little to safeguard from pilfering or theft. He is intensely attached to his own village and loves to live amongst his people and to die in the village to be buried in the family burial place. Age has little experience to transmit, for he forgets easily. He lacks initiative. With a smiling face, smoking his 'ficca' he will approach his employer and do as he is bid and after the day's toil will retire with a smiling countenance. As long as the parents are alive, he has no cares, he does not even worry about his own bread, for, it must come.

(3)

negang napung taikena
 sadam jom go gome keshari chetanerenha
negang napung bangay jana
 sadam jom go gome keshari nosorejana.

English translation :

While your parents lived
 You were on soft 'keshari.'
 When your parents are dead
 The soft fodder withers away.

'Keshari' (*Lathyrus sativa*) is a kind of pulse. It is a luxury with the Hos and so soft keshari stands for a luxurious dish. As long as the parents live, the Hos get that luxurious dish, i.e. they have not to struggle for their bread but with the death of the parents, especially the father, they are put to difficulties. Besides, as long as they remain bachelors, they are comparatively free from worldly cares.

(4)

dinda thaname jarma thaname supered
 othe thopre pinda dom thega thega ya
 othe thopre pinda dom thega thega ya

andi, hanam korandi hanam supered,
 othe thopre pinda tham mukui chethane ya
 othe thopre pinda tham mukui chethane ya

honanam hoponanam supered,
 hone jirim jipida stri konre,
 hone jirim jipida stri konre,

English :

Oh youth, when you were a bachelor, you kicked at your
 dhoti which reached the ground,
 Now when you were married oh youth,
 The ground-kissing dhoti rose up to the knees.
 Again, when you get children
 It is a troublesome burden to you.

(5)

kora non nem janom lena,
 bir jantu leka ge disumen nonora
 " " " " " "
 nam nam lagedethe
 negam napum ko ji ko nakaring than
 " " " " " "
 chanabredo badredo
 kalijug kuri rem chaka dejana.

English translation :

Being born a male child
 You are roaming about the country like a wild animal,

After searching for you
 Your parents have lost their hearts
 And you at last
 Are enticed by a woman of 'kalijug.'

A woman of 'kalijug' implies a woman of easy virtue.¹ The young men, so long as their parents alive, have no cares and anxieties, they seldom remain at home and roam from place to place, indulging in dances and romances. The parents are very affectionate, they do not stand in their way but provide them with food and shelter ungrudgingly. It is only when the young people get married that they settle down and live a family life.

2. *Love Songs.*

The principal motive which induces a Ho to take to matrimony seems, at first sight, to be an economic one. The woman cooks his food, does all his household work, helps him in his field work, takes care of his children, fetches water from the river or the neighbouring 'bandh' and is a valuable asset to the domestic life. The Ho men are weak in health, lazy and incapable of doing much work. This is probably due to excessive drinking of rice-beer or 'handia.' But the economic motive is not the only one in matrimony; the element of love enters very largely, for the principle of mutual selection reigns supreme. Even where the bride and the bridegroom are passive and take no active part and the parents of both settle the marriage, the final choice rests with the bride and the bridegroom. Before a host of relatives and villagers, male and female, the bride and the bridegroom have to interchange looks and if they agree to the marriage, they have to distribute handia to all the relatives on either side. First the bridegroom offers handia to the bride who, if she approves of the former, distributes the liquor to all her relatives, male and female. The bride then has to repeat the process and when both have agreed, the marriage is settled. The refusal to take the liquor on either side breaks off the proposed union.

Further the existence of intrusion marriage amongst them, goes to show that the element of love plays a great part in matrimony. The custom of purchasing the bride is prevalent among the Hos and the bride-price is getting so high that the number of regular marriages is decreasing day by day. And yet we often find that a girl would intrude into the house of her lover, to stay with his people as a drudge, eking out her living by the sweat of her brow. The harsh treatment which

¹ "Kalijuga" is the fourth and most recent "Yuga" (pronounced 'juga' in Bengali) in the orthodox Hindu chronology. It is full of vice and represents the lowest level of moral life. This term has evidently been borrowed from the Hindus.

she receives at the hands of her would-be mother-in-law, sometimes proves too much for her patience and she leaves the house. But this is rare, for, the girl comes prepared for all sorts of ill treatment. Such sacrifice on the part of a girl may come about in two ways. If a young man and a young girl fall in love, and if circumstances stand in the way of effecting their union and the former stands aside, the girl, if her affection for the boy is strong enough, intrudes into the house of her lover, and if she can, by her service, render herself useful to the household; she is allowed to remain in the house of her lover. Or sometimes if a young woman admires a young man secretly, the only way open to her is to intrude into the house of her idol. In some cases, a young man is taken by surprise. The following song expresses the feelings of a young man on such an occasion.

(6)

baring doya doyathe
 sikinisir sonanapanum nothong helena kong
 namdom boroy than baring "
 kadal sakom lir lipir nam dom boroy than,
 kalang boroy baring kalang boroy
 diri jol bangala ¹ re naieng thenguna.

English translation :

After my brother followed a fair young girl with a necklace of silver coins.
 My brother, you are afraid,
 You are trembling like the leaves of a banana tree.
 We do not fear,
 We stand on stone bungalows.

A young girl has intruded into the house of a young man and the latter has been trembling with fear. The brother of the young man has passed to manhood so he is safe, the young women will not follow him, he is as it were, in a stone bungalow.

A reference to the following songs will explain the importance of mutual attachment in matrimony.

(7)

nedar buru jolare
 bapalechi baletan sengel juletan
 kana napui bapal, kana napui sengel
 baring hecha jiri batan.

¹ This is the ordinary Anglo-Indian word '*Bungalow*'—usually a tiled house.

English translation :

There on the slope of yonder forest,
Is it 'bapal' blazing or fire burning ?
It is not 'bapal,' it is not fire,
But the heart of my brother.

'Bapal' is a small triangular area covered with grass, located on the junction of two or more village paths.

This is a love song. The allusion is to a love intrigue between a young man and a young woman which resulted in an union of the two hearts. A youth was in love with a young girl and his heart was burning with the flame of love. The couple eloped, but the brothers of the girl followed them to force her to come back and this gave an occasion for the woman to make a sarcastic reference to the action of the brothers, for they have no cause of grievance as she eloped of her own accord with her lover.

(8)

Maghe.

tondung beter sumudi nidimega sanangi dinda sumudi,
jirim kusi janredo suped reyabara nangebaratan
jetilolom meneredo nando chatomeing sabeya namdo
gugulo.

bari meko sangitana nirjabeta langeko dinda sumudi,
nirja beta langeko biri lidi lidi relang chakatadukua.

English translation :

Oh maid of the forest region, I wish to have you as my partner.

If you sincerely love me, deck me with the flower in your lock of hair ;

If you feel the heat of the sun, I will hold the umbrella over your head.

Brothers you have many, who may follow us and find us, oh maid,

They may find us, but we will throw dust into their eyes, hiding in dense bushes.

Whenever a girl elopes or is carried away by some young man, the brothers of the girl with all relatives and friends follow the pair and offer fight to the friends of the young man. So love songs are often sung with a touch of apprehension.

(9)

chethane pukuri rila mala, lathare pukuri rila mala,
salukad bara furing putawakana kong.

imen sundar barakana
 bara nela thege juring jido hayayan
 dahado golegole, dahado mile mile,
 enereo ja juring godebapade.

English translation :

Water in the tank (from the surface) is clear and transparent to the bottom,
 And the water-lily has blossomed ;
 Though the water is spread to a distance, appearing deep green,
 I must try my best to pluck the flower.

The girl is here compared to a water-lily. The lover knows the risk of forcibly carrying off the girl, but he is determined to take the risk of plucking the flower. The water in the tank is compared to the relatives and co-villagers of the girl, for they will offer resistance in case the girl is carried away from their midst. The comparison of young woman to a mali-flower is very common. The following song gives an example :

(10)

banda nari mali bara
 nanhe chetepara led nanhem asia
 napung gecha para led,
 napung nasi me
 negang gecha rowa led,
 negang nasi me.

English translation :

The Mali-flower on the embankment of the tank
 Was not grown by me, why do you ask me for it.
 My father has grown it,
 So ask it of him.
 My mother has planted it,
 So ask it of her.

A young man is enamoured of a young girl and approaches the brother of the girl for her hand. The brother says that he has no power to do so and advises him to approach her parents who may consent to his proposal. The parents have brought her up and so it is only they who have the right to give her away in marriage.

(11)

jurim tagid malibora
 golam tadam napanum jigeshukia
 golam tadam malibora
 jigeshuku lelotana maliboratan
 goshotana malibora
 jorimdare napanum karenofua.

English translation :

Oh maiden, you have wreathed a heart-charming garland
of mali-flowers for your friend.

You have wreathed a garland of mali-flowers which is
heart-charming,

The mali flowers are withering, your friend will not come ;
If you love me, deck me with it, it looks so beautiful.

The lover is away and the young woman is waiting to see him again. She has wreathed a beautiful garland of mali-flowers for her lover. The lover fails to return on the appointed day, but the woman sits and waits for him. The flowers begin to wither and still the lover does not come. A young man approaches the woman and seeks her hand. He says that her lover will not come, so what is the good of letting the garland wither. He is ready to take her and if she likes may offer the garland to him as a token of her approval.

3. *Moral Songs.*

(a) Next to love songs, moral songs play a great part during festivals. Youth is reckless and the Ho bard warns youth not to be led astray by impulses.

(12)

bariage pompelhonking hendepundi tanaking pompel
honking
supededo diasingal nala raja pompelhonben sutigajena.

English translation :

Only two butterflies, black and white.

A lock of hair, the light of a lamp.

Butterflies do not offer yourselves to die.

Butterflies are ever restless, so are the eyes of a youth. The Ho bard warns the eyes not to be enamoured of the lock of hair of a maid, for it may lure him to destruction. A charming exterior is not the only thing to be desired.

(13)

naben doya bale baring,
nicha jata jamarjata jiri ben suker jana
nera ben nangunan bareng
lungam ken chopra nera ben nangunan
sutam chirem boria badim nadia kong.

English translation :

You my young brother,

You have selected a girl whose mind resembles
the brushwood of Nicha.

You have brought a bride.
 Who is like an empty cocoon.
 Would you draw it into a thread or cut it into a
 bundle ?

Nicha is a wild shrub having small red flowers with sweet juice. (Children are very fond of sucking its flower.)

When a branch of the bush is cut, it dries and changes into brushwood, the leaves dropping off. This skeleton (Jata) is used in training vegetable creepers. The bride is compared to a mere skeleton of a Nicha shrub. As Nicha jata is dry and devoid of leaves and sweet flowers, so the bride is a mere skeleton devoid of any merit. 'Lungam ken chopra' chopra is the empty cocoon with no living worm within. The bride is compared to such an empty shell. She possesses no inner mental qualities.

(b) While warning the young generation to be particularly cautious in their selection of a bride, the poet is aware of the fact that young people very often abuse their power and dupe young women ; so he advises young girls to be discreet and not to place blind confidence in young people who may entice them.

(14)

nindar buru jolare, thuyu china karamuha bandulekana
 jhuyu china kamecha bandulekana.
 kana napui thuyu kana napui kamecha
 kuri chakade kora chana bandu lekana
 kuri chakade kora chana bandulekana.

English translation :

Does a fox or jackal jump on the peak of yonder
 mountain ?

No, that is not a fox nor a jackal,
 But a young man who is an enticer of young
 women.

The poet compares enticers of young women, i.e. false and selfish lovers with the fox or jackal. The fox is described in Ho folktales as a very cunning animal, as in the fairy tales of many other countries.

Ho society freely permits divorces, but cases of divorce are very rare. The reason may be sought in the high rate of the 'gonom' or bride price which precludes a Ho from breaking off the pact from his side. A man would appeal to his community with regard to the faithlessness of his bride, asking the help of the community to bring her back. He would try to carry his bride home twice or thrice, appeal to her, mentioning the high bride price he has paid to her parents, and in the end admitting his own faults and helplessness, and even promising her some ornaments.

(15)

sonareha thalu gagara do,
 rupa reha thalu karasado
 borogoy daha bui nalom nagu
 bahu daha ko kako nuh nu

English translation :

Our vessel is made of gold.
 Our vessel is made of silver.
 Oh Bui! do not fetch muddy water,
 For your brothers will not drink it.

“Bui” is a term of endearment and addressed respectfully to girls. Muddy water stands for immorality.

4. *Miscellaneous Songs.*

(16)

Maghe.

buru bithar maghe bera bethar maghe
 chikathere danrachumnahumeleda kong
 rutu chenho chenho thege danrachum nahumeleda
 banam renho renho thege danrachum chinabeleda
 nokoreha thanr danrachu thore rutu do kong
 nokoreha thanr danrachu
 koyong banamdo kong.

English translation :

How have you heard of the Maghe festival.
 Oh danrachu (bird) of the interior forest region,
 You must have heard of it by the sound of the flute.
 You must have known it by the music of the ‘sarangi.’

The Hos have no fixed date on which festivals are to be celebrated, the ceremonies depending upon the economic condition of the villages. Each village celebrates the festival according to the leisure of the villages and the festival extends over a month or more in Kolhan. The young people go from village to village to enjoy dancing. The sound of the flute and the music of the ‘sarangi’ played by the boys, indicate the approach of the festival in the village. Young men are compared to danrachu which is a kind of bird supposed to be very active. Young men are flocking together to the village from all parts of the country to take part in the dance.

(17)

Maghe.

maghe setera bareng,
 chethane lathare disume the maghe setera

bai jomme bareng
 dama dumang ruthu banam baijomme
 nimir gapa bai thare
 maghe setere tenere esu ransāā
 ena mentheng kajiam thana
 nimir gapa kore lareng baijomme.

English translation :

Dear brother, maghe will come in its annual course,
 Be prepared with your drum, band, pipe and guitar,
 It is a pleasure to get ready with the instruments
 beforehand.

Therefore, I tell you brother, get ready with all these.

Formerly the Hos were very generous, and hospitable. Strangers were comfortably lodged in their homes and they were all attention to them. Visitors to their fields were cordially received and were allowed to partake of the produce of the field for immediate use. In the following song the poet depicts the beauty of the healthy plants of tobacco and brinjal on the alluvial soil on the river bank.

(18)

Ba.

nepa paromere thamaku thamasathada ko thamaku
 therepa paromere berenga bengangangi jolena berenga
 pekaye joka nidi me thamaku themasa thadako thama-
 ku,
 nuthui joka godeme berenga bengangangi jo lena
 berenga.

English translation :

On the bank of the river there, the tobacco is grown.

On this bank of the river, the brinjal is grown.

You may take the tobacco as much as you require for a
 'ficca.'

You may pluck the brinjals as much as you require for
 cooking.

(19)

Ba.

maranggara gitile dipare, kharbuja nutuputu
 nuringgara kochakudure bengamai senegone
 jomege sananginha, kharbuja nutuputu
 nuhuge sananginha ho, kochakudure bengasenegone
 dakharbuja jetelolore, nesusibila
 kocha kudur bengasenegone, sardinutture, nesunogoda.

English translation :

On the sandy bank of the big river water melon is grown abundantly.

In the field on the small river brinjal is grown luxuriantly.

Oh, how I long to eat of the abundant water melon.

Oh, how I long to cook the brinjal of the field.

The watermelon is very savoury when eaten in the hot summer.

The brinjal is very sweet when cooked in the winter.

The traditional origin of the Hos ; together with a brief description of the chief Bongas (or gods) of the Hos.¹

By D. N. MAJUMDAR, M.A.

The tradition of the Hos regarding the creation of the world, and the origin of the human race has been described as follows in Colonel Tickells' account of the tribe published in Vol. IX of the *Journal of the Asiatic Society of Bengal*, p. 797. Oteborom and Singbonga were self-created. They made the earth with rocks and water, and they clothed it with grass and trees. Next they created animals, first those that man domesticated and afterwards wild beasts. A boy and a girl were then created and put together in a cave to people the world. Finding them too innocent to give any hope of progeny, Singbonga taught them the preparation of 'illi' or rice-beer which excites the passions, and in course of time they brought forth twelve sons and twelve daughters. When the first parents had produced these children, Singbonga prepared a feast of the flesh of buffaloes, bullocks, goats, sheep, pigs, fowls and vegetables, and making the brothers and sisters pair off asked them to choose the kind of food they wanted for their sustenance before starting out into the world. The first and second pair took bullocks and buffaloes' flesh, and they originated the Hos and the Bhumij, the next took the vegetables only and became the progenitors of the Brahmins and the Kshatriyas. Others took goats and fish and from them are the Sudras. One pair took shell-fish and became Bhuiyas, two pairs took pigs and were ancestors of the Santals. One pair got nothing, and seeing this the Kol pair gave them of their superfluity, and the descendants of these became the Ghasias, who were menials in Kol villages and supported by the cultivators.

An alternative version of the origin of the Hos collected by me is given below. Singbonga was self-created, and he created the earth from a lump of clay (hasa). To people the earth, he made it habitable by creating all kinds of trees, plants, herbs and grass, rivers and bandhs and birds and beasts of all sizes and descriptions. And the 'horohonko' or the sons of men were born of the egg of a bird 'hur' or swan. Out of a swans' egg came forth a boy and a girl ; they were first human beings by whom the earth was peopled. But this creation did not last long for

¹ A detailed study of this subject, I propose to give in my Monograph on the tribe which I am writing.

Singbongā was somehow offended by his own creation and he became enraged. In his fury he created an atmosphere of blazing flames. When all life was thus destroyed, Singbonga saw the folly of his fury and repentance seized upon him. He then began to seek out traces of life and approached all the lesser gods to find out if they had hidden any soul. At last Nage bonga or the water-deity came with a pair of living souls, which she kept under the sheet of water, a brother and a sister, and with this pair Singbonga hoped to bring forward a race of man. As they were brother and sister sexual intercourse between them was not possible, so what else could the High-god do, but to offer them 'handia,' an intoxicating preparation. Now it was the intoxication caused by the drinking of this fermented liquor that made sexual intercourse between the brother and the sister possible and the Hos were created.

The supreme God of the Hos is the Singbonga or the Sun, who has created them and is the cause of all things on earth. He has created the earth, the starry heavens above, the deep below, and all spirits that move on earth and air. He is the father of all good thoughts and man's works in light and in darkness. He is the cause of birth "Singbonga emetana," the cause of death, he is the God of rains and is invoked during intense draught. He is also prayed to during sickness. It was he who taught the Hos the preparation of 'handia' which is to the aborigines the elixir of life. When the village gods and the ancestral spirits fail to help the people materially in their distress and agrarian troubles, the villagers offer sacrifice to Singbonga, and it is believed that peace and prosperity follow. But this is on rare occasions for he is a benign God, and is always believed to be sympathetic towards men. All the village godlings and other deities are under the direct control of Singbonga.

The presiding deity of the ancestral home of the Hos is known as the 'Marang bonga.' The Hos point to the north-west as their ancestral home, and their traditions have a pleasant recollection of the place. There are "Seven tanks seven bāndhs, a hill of garlic, and a hill of ginger." Marang means great and Marang bonga comes next to Singbonga in order. When epidemics sweep away the villagers and Dessauli bonga fails to drive these away, the Hos offer red cocks to Marang bonga as an appeal to a higher deity.

The Hatuko bongas preside over the fortune of the villagers. Hātu means village and Hatuko bongas mean village godlings. There are three Hatukos, and they are jointly prayed to for earthly prosperity. When going on an errand, sacrifices are promised to them. Should the errand prove successful, and the devotee refuse to offer the sacrifices promised, the punishment given by these bongas is very severe, for the man loses everything, his belongings, chattels and movables, while he

himself falls a victim to chill penury, and till he can afford to make amends for his promise, his life is made unbearable.

The Dessauli bonga is the presiding deity of the village. Each village has one Dessauli who is its guardian. He has a fixed abode, outside the village but not far away, on the top of a neighbouring hill or a big tree, preferably a banian, but where the latter cannot be had on a tamarind tree. Festivals are held in honour of Dessauli bonga. On the Maghe and Baha festivals sacrifices of cocks and he-goats, with offerings of rice-beer are offered to the bonga. During the epidemics of small-pox and cholera his aid is always sought, and he is regarded as the most active and powerful deity of the Hos. The Dessauli bongas of some villages have distinguished themselves for their benign patronage of the villagers.¹

'Jahir buri' is a female deity supposed to be the wife of Dessauli bonga, with whom she lives. She is a voracious deity, the villagers offering choice foods to her whenever they can afford to. During Maghe and Baha festivals, each villager has to offer one fowl to her; defaulters are condemned. 'Jahir' means a grove and each village possesses one or two of them, and it is believed that these groves have the power of warding off epidemics and diseases.

The goddess presiding over water is known as 'Nage-ëra' or 'Bindi-ëra.' In some quarters she is identified with 'chandi.' She was responsible for the origin of the Hos. When Singbonga destroyed all life on earth, by creating an atmosphere of blazing flames, it was this deity who preserved two souls, a brother and a sister under the sheet of water, and these two souls in time produced a handful of men, whose descendants are the Hos. She is very fond of pigs, and it is said that if during sickness a pig is promised to this deity, the man is sure to recover. Eggs and turmeric are also usually offered to her.

Hero-bonga is worshipped during the Heroparav and is said to preside over crops. Before the villagers begin to plough their fields and sow seeds, they invoke Hero-bonga who blesses them with sufficient return.

Oa or Wagoi bongas are the household gods of the Hos, *i.e.*, the spirits of their ancestors. The Hos are very partial to the worship of these spirits. Whenever they offer any sacrifice to a bonga, they take special care to propitiate the household gods also. These bongas look after the safety of their devotees, and it is said, they give timely information to the villagers whenever any disease or epidemic is apprehended. But the Oa bongas are liable to be easily displeased. In case the villagers fail to propitiate them regularly, they get annoyed, and chastise the family members by infesting them with diseases of various kinds.

¹ Jorapukur, Pendrasali, etc.

These are some of the good bongas that preside over the destinies of the aborigines. I should mention that the number of bongas is not fixed; it changes constantly as it is being continually added to. At present there is a tendency amongst the Hos to assimilate the deities of the Hindu pantheon, changing the names and functions of the latter to suit their own ideas. It is, therefore, likely that the number of their deities will swell in the near future. On the other hand as there also exists an opposite tendency to discard what is old or antique, it is not at all certain whether all the bongas now in existence will continue to do so for ever.

Although no new religious movement is in view like the Tanabhatagat movement of the Oraons,¹ who suspected that the old spirits to whom they looked for help were powerless to save them in their distress, and began to persuade themselves that it was indeed those very spirits that were wholly responsible for their degraded economic and social conditions, and must not be abandoned but expelled from the Oraon country, the Hos have a peculiar fascination for the religion of their dikku, *i.e.*, foreign usually Hindu neighbours. In some places, they have openly taken the festivals of the Hindus as their own, *e.g.*, the charak festival, in which the Hos of Chakradharpore join their Hindu neighbours. So it may be legitimately assumed that given sufficient opportunities, the Hos are likely to evolve gradually a distinct religion based on their indigenous beliefs, but adopting the rites and customs of their more cultured Hindu neighbours.

The following are some of the malignant spirits supposed to cause mischiefs to the Hos. They are generally spirits of mischievous persons known to the Hos, who after death prefer to chastise their fellow tribesmen by inflicting on them various diseases and punishments for imaginary or real offences.

'Churin bongas' are spirits of women dying in child-birth. When these get annoyed they sit on the heads of children, and the consequence is that the children suffer from rickets or die. They also sit on the breast of pregnant women thereby displacing the placenta. Women are very much afraid of these spirits, and they take care to propitiate them regularly with offerings of rice-beer and sacrifice of fowls.

'Kachin bongas' are spirits of persons who meet with watery graves. They are very mischievous, and whenever they find anybody taking his bath alone during night, they take him down to the depths of the river, and, if the man be not an expert swimmer, he is sure to be drowned.

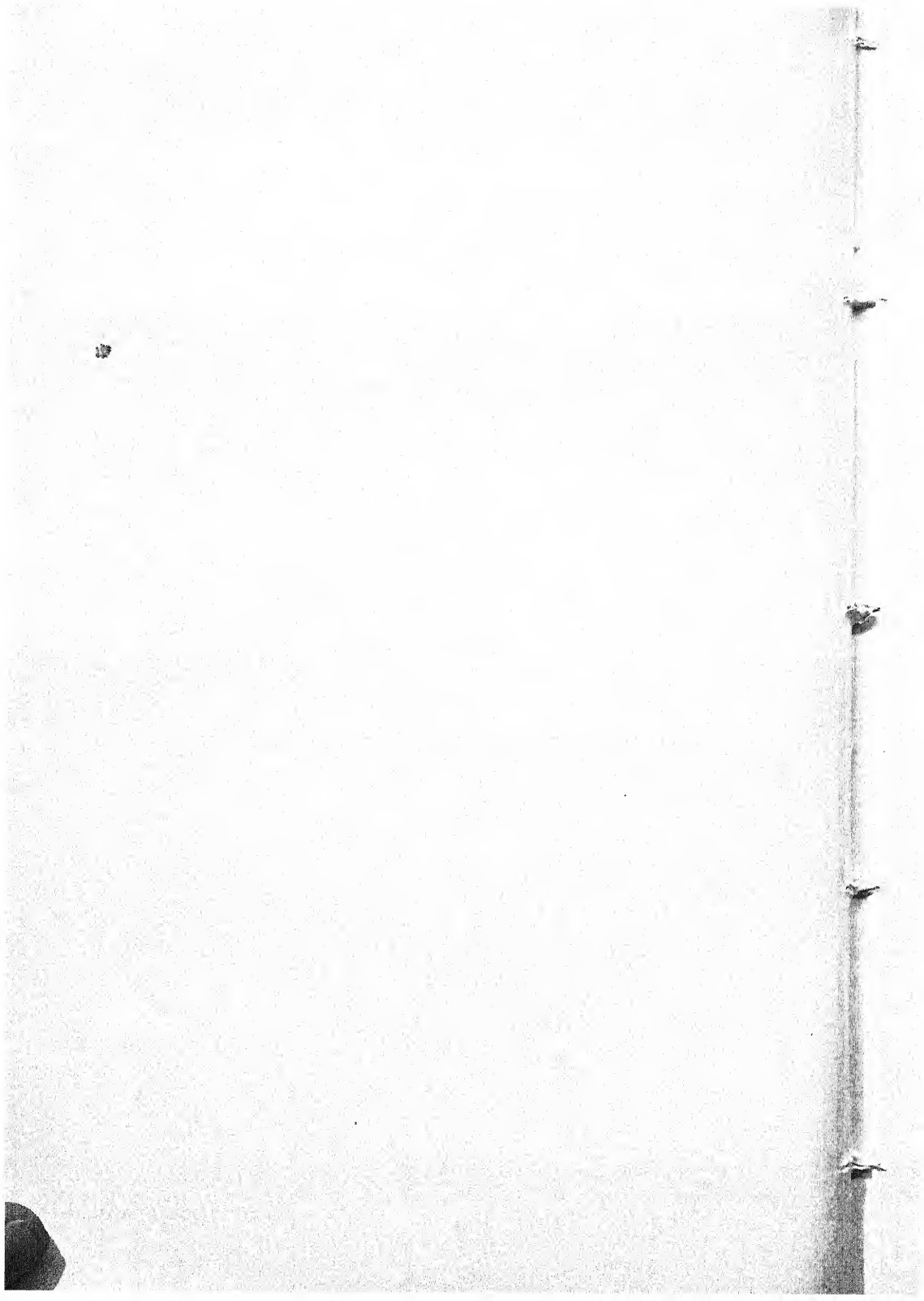
'Nason or Mua bongas' are spirits residing in grave-yards. They are said to way-lay travellers during night. An annual offering of 'Sasanmundi' or rice cooked in the burial ground,

¹ Vide *Man in India*, Vol. 1, No 4, article on "A new religious movement among the Oraons" by Mr. S. C. Ray.

is required to propitiate them without which they are vexed ; for they take food once a year. 'Nayom bonga' is worshipped by those who practise in poison.

'Haukar bonga'—this is the favourite god of the witches. Every village is said to contain a number of these witches who assemble at night under a big banian tree (or tamarind tree) outside the skirts of the village where they set up a nocturnal dance in honour of the bonga. Anyone passing by them at night is sure to be killed and the blood is offered to the 'bonga.' During this communion with the spirit the witches get possessed, when they are ordered by the spirit to chastise this or that person of the village who might have incurred the displeasure of the spirit, somehow or other.

'Kariya bonga' or the god of the Kharias, a section of the Mundari race. An alien spirit, is invoked by the village Dewa or the medicine man to undo the charms of mischievous spirits.



On the Terminology of Relationship of the Hos of Kolhan.

By D. N. MAJUMDAR, M.A.

The kinship nomenclature of the Hos is classi-descriptive in character. There are two principal systems of kinship terms, one in which the terms are applicable not to single individual persons, but to classes of relatives which may often be very large, and the other in which the terms denote single individual persons. In reality, however, this latter system of nomenclature is seldom found anywhere. Even in the terminology of relationship of most of the Caucasian peoples, which Dr. Rivers speaks of as the family system, sometimes a group of individuals is denoted by one common term so that the difference in the two systems, classificatory and descriptive, may be reduced to one of degree. That is, in the former a term is used to denote a larger number of individuals, while in the descriptive system of terminology, a term refers ordinarily to one single individual. Thus, for example, the Sema Nagas use one word 'âzâ' to denote mother, father's brother's wife, and mother's sister; the same people use 'apu' to denote 'father,' father's brother and mother's sister's husband. Again they use 'ani' to denote father's sister, wife's mother, husband's mother, husband's sister, husband's brother's wife. The Angami Nagas use 'thi' to denote, wife's elder brother, wife's elder sister, husband's elder brother, elder sister's husband, elder brothers's wife, mother's brother's wife, father's brother's wife. Again the term 'Ni' is used to denote father's brother's wife, elder brother's wife, husband's elder sister, etc. Amongst the Hos, mother's brother, father's sister's husband and the father of both husband and wife are all called 'Hoyar.' Again, father's sister, mother's brother's wife and mother of both husband and wife are denoted by 'Hatom'.¹

According to Dr. Rivers, in the most complete form of the classificatory system, there is not one single term of relationship, the use of which tells us that reference is being made to one person and to one person only.²

The question of the origin of the terminology of relationship has been attacked from different standpoints. Some have explained it by referring it to a psychological similarity exist-

¹ For mother's brother they now use 'Kumang' and for wife's mother—'Hanr.'

² See Dr. Rivers, kinship and social organisation.

ing between persons denoted by the same term, while others have recognised social functions as determining the terminology of relationship. Dr. Rivers has championed the latter hypothesis, and the kinship nomenclature of both primitive and advanced societies justify his conclusion. The origin of kinship terms from antecedent social functions seems to be the most probable hypothesis formed up till now. When the Hos use the term 'Hoyar' to denote mother's brother, father's sister's husband and the father of both husband and wife, the application of the term can easily be explained by referring to social function antecedent to the use. Thus, the custom of cross cousin marriage is very much prevalent amongst these people, and as a result of this form of marriage, the mother's brother and the father's sister's husband get to the position of fathers-in-law, and consequently they possess only one term to denote mother's brother, father's sister's husband and the father of both husband and wife. Again the mother's sister's husband has no special term of address. This can only be accounted for by the fact that the Hos allow marriage with the mother's sister. So the mother's sister's husband is identified with the speaker, and consequently they possess no special term to denote the relationship. The wife's sister of the Hos has no special denomination. This is not the case with the Hos alone. From the most primitive to the most advanced society, the wife's sister possesses no special term of address. Sometimes it is conventional to address her by a term of endearment or mild reproach as '*SALI*' in Bengali. A reference to the custom of marrying the sister of the wife during the life time or after the death of the latter explains the absence of a special term for the wife's sister.

But undue stress should not be laid on the importance of social functions in determining the terminology of relationship as there are other factors which must be considered. A rich vocabulary is an acquisition of cultured people, and the vocabulary of a people very often determines its cultural stage. When the same term is used to denote a number of relatives male and female, it cannot be explained by reference to any particular social function, the main explanation being the low cultural stage.

Sema Nagas :

- Apuzâ—(1) Father's mother.
 (2) Mother's father.
 (3) Mother's mother.

Angami Nagas :

- 'Thi'—(1) Wife's elder brother.
 (2) Wife's elder sister.
 (3) Husband's elder brother.

- (4) Elder sister's husband.
- (5) Elder brother's wife.
- (6) Mother's brother's wife.
- (7) Father's brother's wife.

Hos :

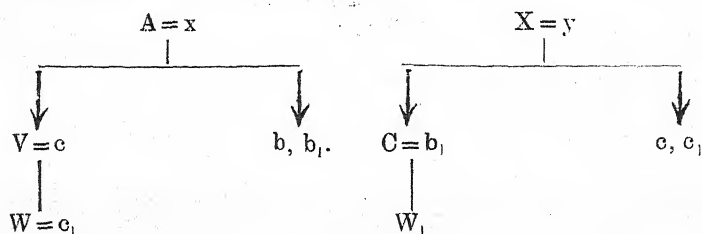
- 'Gungu'—(1) Father's elder brother.
- (2) Father's younger brother.
- (3) Father's elder brother's wife.
- 'Tangain'—(1) Elder sister's husband.
- (2) Husband's younger brother's wife.
- (3) Husband's elder brother's wife.

An imperfect language is the outcome of an imperfect civilisation, for language only fulfils the wants of those who speak it. When the Australian language is said to be poor, it is meant that the stage of civilisation which the Australians have reached is a low one, and the language subserves the simple wants of those who speak it. So the poverty of the vocabulary may be accounted for by the material civilisation of the people. Requirements decide what the wealth of language shall be.¹ So the terminology of relationship has sprung up from social functions conditioning the use and the requirements of the people who speak the language.

A few words about the Ho terms of relationship are necessary for further research on kinship. Father's sister's children have no special terms in Ho terminology, they are called (e) *Hatom hon* or (y) *Hatom undi*, i.e., father's sister's children. The Mother's brother's son is classed with the father's sister's son and is denoted by '*Hoyar hon*'. The husband's sister's child, wife's brother's child, wife's brother's daughter, daughter's son, daughter's daughter, are all denoted by the term '*gaing*', but when addressing these relatives, the personal name of the addressee is preferred. The use of the term '*gaing*' to denote two generations is significant when it means husband's sister's child, wife's brother's child, how is it possible that the term is applied to the daughter's son or the daughter's daughter, which are one generation below the former? It has been said above that the Hos are very fond of cross cousin marriage. Formerly this form of marriage was compulsory. In case a man for any reasons cannot marry his cousin, he has to give presents to the mother's brother, and without this no marriage is regarded as valid. In the same way, the mother's brother also has to satisfy his nephew before he can marry his daughter to a chosen bridegroom. Marriage with the mother's sister is also common amongst the Hos. So to account for the use of the term '*gaing*' these two

¹ See Ratzel, *History of Mankind*, Vol. 1, Chapter on Language.

social functions are to be taken into consideration. A reference to the following diagram will be of help in understanding the significance of the term 'gaing'.¹



Let 'A' man marry x woman, X man, the brother of x woman, marry y woman. Let the issues of the first pair be 'V' man and b, b₁ girls and those of the second pair be 'C' man and c, c₁ girls. Again let 'V' man marry 'c' girl and C man marry b₁ girl, and the issues are respectively W and W₁. Now V is the father's sister's son of C and C is the mother's brother's son of V and therefore

$$H.S.Z = V = M.B.Z = C.$$

[By cross-cousin marriage] [Z denotes son]

$$W = D.Z \text{ of } X.$$

$$W_1 = D.Z \text{ of } A.$$

To prove that $V = C = W$.

If W marries c₁, the mother's sister of W.

Then W is C's sister's husband.

or V's wife's sister's husband.

∴ V.C.W. possess the same social position and therefore husband's sister's child, wife's brother's child and daughter's child are all denoted by one term, e.g., "gaing".

THE KINSHIP TERMS.

| | | |
|---------------------------------|---|------------------|
| Father's father | } | Tata. |
| Mother's father | | |
| Father's mother | } | Jiyam. |
| Mother's mother | | |
| Father—âpu. | | |
| Mother—ângâ. | | |
| Father's elder brother—Gungu. | | |
| Father's younger brother—Gungu. | | |
| Father's brother's wife. | | |
| | { | elder—Gungu. |
| | { | younger—Gawaing. |

¹ H=husband, S=sister, M=wife, B=brother.

- Father's sister—Hatom.
 Mother's sister—Gawaing.
 Mother's sister's husband—No special term.
 Mother's brother—Hoyar, Kumāng.
 Mother's brother's wife—Hatom.
 Wife's father—Hoyar.
 Wife's mother—Hanr, hatom.
 Husband's father—Hoyar.
 Husband's mother—Hanr, hatom.
 Elder brother—Bâu.
 Younger brother—Undi.
 Elder sister—Âjing.
 Younger sister—Unding.
 Father's brother's son—Hon, honâr.
 Mother's sister's son—Bâu (e).
 Undi (y).
 Father's sister's son (e) Hatom hon.
 (y) Hatomundi.
 Father's brother's daughter (e) Âjing.
 (y) Unding.
 Father's sister's daughter (e) Hatom hon.
 (y) Hatom Undi.
 Mother's sister's daughter (e) Âjing.
 (y) Unding.
 Mother's brother's son—Hon.
 Mother's brother's daughter—erâ.
 Husband—Heral.
 wife—erâ.
 Wife's sister—No special term.
 Husband's elder brother—Bâu hoyâr.
 Husband's younger brother—Eril.
 Husband's sister—Hanr (e).
 Eril (y).
 Wife's sister's husband—Saragin.
 Husband's elder brother's wife—Tangain.
 Husband's younger brother's wife—Tangain.
 Wife's brother's wife—Hanr.
 Husband's sister's husband—Erakin or personal name.
 Elder sister's husband—Tangain.
 Elder brother's wife—Hili
 Younger sister's husband—Erakin or personal name.
 Younger brother's wife—Undikimin or " "
 Son's wife's parents { Bâlâ.
 { Bâlâ erâ.
 Daughter's husband's parents { Bâlâ.
 { Bâlâ erâ.
 Son—Hon.
 Daughter—Honerâ or.
 Brother's child—Hon or personal name.

Sister's child—Hon or personal name.

Husband's brother's child—Hon. or personal name.

Husband's sister's child—Gaing.

Wife's sister's child—Hon.

Wife's brother's child—Gaing.

Wife's brother's daughter—Gaing.

Daughter's husband—Erâ.

Son's wife—Hon kimin.

Son's son—Jai or garam.

Daughter's son—Gaing.

Son's daughter—Jai.

Daughter's daughter—Gaing.

Note on the Indian Boomerangs.

By SIR GILBERT WALKER, Kt., C.I.E., F.R.S.

The existence in the Madura district of projectiles resembling small boomerangs is well known : they are made of wood, bone or ivory, and have a knob on one end while the other end does not end in a point but is cut off in a straight line nearly perpendicular to the curve. I have not seen them thrown but from their shape I infer that the right forefinger is hooked round the knob while the straight edge of the other end is pressed gently against the chest : a flick with the wrist will then give considerable spin, and without this the implement will not travel far. Some at least of those that I have seen have a twist in their plane and might perhaps, without much modification, be capable of describing part, or even the whole, of a circle if thrown with great force ; but I have not seen enough examples to know whether the twist, which resembles that of the arms of a wind-mill or of a screw propeller, is deliberate or accidental.



Diagram of the 'Kâtar' from Kadi division : greatly reduced.

I have however never seen any allusion to the implements called 'kâtar' which are used as throwing sticks by the Bhils. I am sending to the Zoological and Anthropological section of the Indian Museum, Calcutta, a specimen which I owe to Mr. W. E. Jardine, C.I.E., Resident at Gwalior. It was provided by the Thakore of Ghantu through Mr. G. B. Nimbalkar, Revenue Commissioner, Baroda State, who says that it is only in the Kadi division of the Baroda State that the wooden kâtars are used. The kâtar is clumsily made and is only capable of travelling in an approximately straight line ; it is about 26" long, 1 $\frac{3}{4}$ " wide, 5.8" thick and weighs 9 $\frac{1}{2}$ oz. I believe that somewhat similar implements are still to be found in north-east Africa, though they are probably extinct in the English fen-country where it is said that they used to be thrown at rabbits. That form of the Australian boomerang which I regard as the most primitive is essentially like them, and from this type I believe that the returning boomerang has slowly developed in

successive steps, each step arising by selection based on experience of varieties which were always arising from the inability of savages to copy accurately with stone implements and from frequent warping owing to climatic conditions. A further discussion of this evolution will be found in "Nature," 64 (August, 1901), p. 340.

ERRATA.

J.P.A.S.B., Vol. XX, 1924, No. 6.

| | <i>for :</i> | <i>read :</i> |
|---------------------|--------------|---------------|
| P. 361, § 4, l. 3 | Prasiola | Euteromorpha |
| P. 363, No. 6, l. 2 | Teytonema | Seytonema |
| „ „ l. 9 | Teytonema | Seytonema |
| „ „ l. 11 | T | S |

Notes on the Geology of Kohat, with reference to the
homotaxial position of the Salt Marl at
Bahadur Khel.

By MAJOR L. M. DAVIES, R.A., F.G.S.

Introduction.

As a result of military service at Kohat during the last two years, I have come to think that there is a distinct resemblance between the Nummulitic series to be seen at Bahadur Khel and that which exists at Kohat, and the better defined series at Kohat may perhaps be useful in providing a clue for elucidating the more obscure succession at Bahadur Khel.

As regards the Salt, I do not propose to say very much. It is well known that opinions have long been divided as to its origin. Some, like Wynne, Drs. Christie, Pascoe and Murray Stuart, have ascribed an ordinary sedimentary origin to the Salt, regarding it as due to the desiccation of enclosed seas; while others, like Mr. Oldham and Mr. Vredenburg, have been unable to accept this idea. Alternative theories are that the Salt is either an intrusive hypogene rock, or due to the alteration of pre-existing sediments by the subterraneous action of acid vapours and solutions. Opinions are also divided between those who, like Wynne, have thought that the eastern (Cis-Indus) Salt must be dissociated from that at Bahadur Khel, as belonging to an entirely different and infra-Cambrian horizon, and those who argue for the essential unity of the whole Punjab Salt. If the Salt is all to be regarded as belonging to one horizon, opinion is again divided as to whether the Salt is of Eocene age, and brought under Cambrian rocks by some system of under- or over-thrusting to the east, or whether it is a pre-Cambrian formation faulted into juxtaposition with Eocene beds to the west.

These questions being so vexed, I propose to leave them entirely alone here and merely deal with the position, in taxial series, of the Salt as actually found at Bahadur Khel; a matter which should have an interest of its own, apart from the points in dispute.

My reason for collecting as precise data as I could, in regard to the Nummulitic series at Kohat and Bahadur Khel, was that, so far as I am aware, no exact data have ever been collected as yet upon this horizon within this area. It is true that Wynne made a very well known and careful report upon the Trans-Indus, or Bahadur Khel, Salt Region (*Memoirs*,

Geol. Surv. Ind., Vol. XI, Pt. 2) in 1875, and also offered the results of a much more hurried reconnaissance from Khushalgarh to Thal (*Records, Geol. Surv. Ind.*, Vol. XII, Pt. 2) in 1879; but in both cases he covered so much ground that, beyond clearly recording the presence of Nummulitic beds both at Kohat and at Bahadur Khel, he did little to establish any closer correspondence. Indeed, some of his remarks might be taken to imply that such correspondence did not exist; thus he apparently regarded the Bahadur Khel rocks as "early" Eocene (*Mem.*, p. 55), and the Kohat ones as "upper nummulitic" (*Rec.*, p. 105), which perhaps obscures the fact of their close correspondence in one horizon at least,—a fact of which I am now almost certain. Others, too, who have followed Wynne into the Bahadur Khel area, seem to have been content to accept the general "Nummulitic" character of the beds overlying the Salt, without going into any further question as to the exact position they might occupy in the Nummulitic series.

The Nummulitic Series at Kohat.

I propose to begin, therefore, by very briefly describing the general character of the rocks in the vicinity of Kohat. These run, broadly speaking, east and west. There is a faulted junction line at the foot of the Kohat Pass, to the north of Kohat. This line was referred to by Wynne long ago, in his reconnaissance report above mentioned, and is also recognised on the Geological Survey maps of this area. To the north of this junction line lies a mass of Mesozoic rocks, mostly limestone, through which the Peshawar road runs. I have found many canaliculate *Belemnites* in certain layers of these rocks, but only a few and indistinct traces of *Ammonites*. Some *Crinoid* stems (*Pentacrinus* type) are associated with the *Belemnites* in one or two spots.¹

To the south of this faulted line come parallel ridges of Nummulitic limestone, running east and west and forming the foothills. Kohat itself stands upon a mass of sub-recent

¹ The fauna I have found in these rocks appears to me very similar to that pictured from Aden (*Records G.S.I.*, Vol. XXXVIII, pp. 336, ff., and plates 35-36), which is regarded as probably Upper Jurassic (p. 340). The Kohat *Ammonites* have the external markings of *Perisphinctes*, while the *Belemnites* closely resemble *tanganensis* Futterer (also another upper oolitic type, *grantianus* d'Orb.). The association with *Pentacrinus* (cf. p. 340) makes a further point of resemblance. I have so far found nothing that is clearly Cretaceous near Kohat itself, although rocks of a different aspect, and probably Cretaceous, appear further to the West (e.g., the Samana range, on the crest of which I have found earlier Eocene rocks than anywhere else in these parts, showing a combination of the Ranikot *Athleta noeltingi* with a *Cyclolites* closely allied to the Upper Cretaceous *medlicotti*).

- | | |
|--|-----------|
| (1) Red, purple, and dark grey (sometimes green) sandstones and grits, with clay bands (Murree beds) | 400 feet. |
| (2) Hard yellow nodular limestone, ¹ with small Nummulites and Alveolina, often found forming a ragged top to the eastern foothills | 60 " |
| (3) Flaggy or massive grey to dark grey limestone, with larger Nummulites and big Assilines, which sometimes weather out dark red or brown | 60 " |
| (4) Nummulite shale ² darker coloured above than below, with many large <i>Assilina exponens</i> , and packed with <i>N. atacicus</i> (<i>biarritzensis</i> type), <i>N. perforatus</i> (<i>crassus</i> type), <i>N. perforatus</i> var. <i>obesa</i> , and <i>Alveolina</i> throughout. Many fragments of a large <i>Gryphaea</i> -like ³ fossil are found here, sometimes accompanied by a small <i>Pecten</i> -like form; otherwise molluscs are rare | 130 " |
| (5) Pale yellow or white clay bed packed with <i>Chamidae</i> and other molluscs, some of which (like <i>Corbula</i>) indicate comparatively shallow water; also small echinoids and corals. A well marked <i>Patellina</i> species, | |

¹ This uppermost Eocene bed of the Kohat area is identifiable with the "Alveolina" limestone mentioned by Wynne on the road to Thal (*Rec. Geol. Surv. Ind.*, Vol. XII, Pt. 2). Where he speaks (p. 106) of finding "more solid" limestone overlying "lumpy gray or drab Alveolina limestone, which rests upon strong gray sandstones," etc., he refers to beds 3, 2, and 1 respectively, which there appear reversed. The series is quite unmistakable, for beds 4 to 8 appear in regular order beyond 3. I mention this, because Wynne's "Alveolina" limestone, which is *supra*-Chharat, should not be confused with that of Vredenburg, which is *infra*-Chharat.

² I used the term "Nummulite shale" for this bed before I had seen Mr. Pinfold's Punjab series. Two visits, however, to his type area at Chharat (see *Records G.S.I.*, Vol. XLIX, pp. 137, ff.) have since convinced me that the name is correctly applied as representing a real correspondence. It seems to me that, in spite of many differences in detail, Mr. Pinfold's "Chharat" series undoubtedly corresponds to part of my Kohat one. Thus his "Nummulite Shales" correspond to my bed 4; his "Limestones and Shales" to my bed 5; his "Variegated Shales" to my beds 6 to 8 (although these beds are altogether more interstratified at Chharat than at Kohat, where 6 and 7 only appear at the top of 8). I agree with Mr. Pinfold that his "Variegated Shales" probably correspond to the Ghazij Shales, although (as shown in the text) I think that his "Limestones and Shales" are better regarded as an uppermost Laki bed than as a Khirthar one.

³ This is the "globose oyster" of Mr. Pinfold's Nummulite shale. It seems to be identifiable with *Ostrea vesicularis* Lam. (*Gryphaea globosa* Sow.), a Laki horizon fossil of Sind, which similarly extends into the Khirthar (cf. *Mem. Geol. Surv. Ind.*, Vol. XVII, Pt. 1, pp. 104, 204)

whose exact affinities have yet to be decided, ranges throughout this bed, together with *N. atacicus*, *Assilina spira*, and *Alveolina oblonga* and *javana*. The bed may be divided into three portions as follows:

- (a) An upper portion; soft clays, generally with molluscs throughout. On top there is often a peculiar assemblage of foraminifera: *N. laevigatus*, *N. laevigatus scabra*, and *N. cf. carteri* putting in a fleeting appearance here, together with a mixture of *crassus* and *exponens* from the upper bed, and *spira* and *Patellina* from lower levels, which here overlap .. 42'
 - (b) A middle portion, characterized by thick pale yellow or white calcareous clay or limestone bands, with narrower and darker-coloured partings of softer clay. Molluscs and foraminifera generally abound in these partings .. 27'
 - (c) A lower portion, with much thinner stiff bands, and broader partings between. As the partings are often stronger coloured than the bands, this portion of the bed has more yellow and olive tints than the upper portions. A small Nummulite, *N. cf. ramondi*, is almost always found frequenting this portion, and the lowest band or bands of it are packed with small *Ostrea*,¹ and a small variety of *Assilina spira* .. 27'
- Total thickness of bed .. 96 feet.
- (6) Hard white, or pale blue, calcareous clay or limestone band or bands, sometimes showing sections of small molluscs of *Planorbis* type. The upper portion of this bed sometimes merges with the *Ostrea* band above. Thickness .. 4'-30 ..

¹ Bryozoa are associated with these *Ostrea*.

- (7) Lavendar coloured clays 5'-25 feet.

Beds 6 and 7 seem to be alternative forms of each other, as they are often interstratified, and sometimes even replace each other within a short distance in the same exposure.

- (8) Chestnut or copper-coloured nodular clays, weathering to red, crimson, or even reddish purple colours 520 "

Whether sandstones form any part of this bed at Kohat I cannot say. I have not found any yet, the whole middle portion of the best exposure being covered with detritus. The upper and lower portions are there seen, however, and both are clay. The upper portion is as above. I could not find an unweathered portion of the lower part, which had weathered a dull brick red, like the corresponding (see below) bed at Bahadur Khel. The upper portion of this bed at Kohat, weathering often to purplish tints, is apt, at some distance, to look surprisingly like the overlying Murree beds. I think this explains what puzzled Wynne (*Records Geol. Surv. Ind.*, Vol. XII, Pt. 2, pp. 103, 105, etc.), for I have not yet seen the interstratification he speaks of.

- (9) Hard flaggy yellowish-brown limestone,¹ full of small Nummulites. The middle and lower thirds of this bed have thinner flags (4" to 9" thick) than the upper, these flags having olive clay partings. The centre line of the bed is marked by a bright yellow or ochre-coloured band, 2 feet thick, with *Cidarid* plates, *Ostrea* (?) etc. Total thickness of bed 54 "

- (10) Yellow limestones and clays, in which numerous narrow (2" to 4" thick) tough and lumpy limestone bands of pale yellow or white colour are separated by bright ochre clays (5" to 6" thick). The bands

¹ This bed appears abruptly, without any of the "passage" elements found between the Chharat series and the "Hill" limestones near Fatehjang. This abruptness may indicate an unconformity. On the other hand, the dips are very constant throughout this section, so I do not like confidently to postulate an unconformity without further evidence. If one exists, then the dimensions of either bed 8 or 9—or perhaps both—might have to be increased.

are closer packed in the lower part of this bed, which becomes almost a flaggy limestone. The upper middle part of the bed also contains 18 feet of hard brown flaggy limestone, similar to bed (9) above.

This bed is fossiliferous throughout, being packed with large echinoids (including a *Conoclypeus* species not far removed from *C. sindensis* of the Upper Ranikot, also *Hemiaster apicalis*, a mid-Laki species of Sind, etc.), large corals (*Trochosmilia*, *Montlivallia*, etc.), and large molluscs.¹ The whole fauna of this bed, although resembling that of bed (5) above in many ways, is composed of far bigger individuals,² probably implying more favourable conditions of existence. Foraminifera are *N. atacicus*, *Assilina granulosa*, and *Alveolina oblonga* (abundant). *Orbitolites complanatus*, Lamarck, also abounds.

Thickness of bed 146 feet.

(11) Soft olive and blue-grey clays, divided up as follows:

- (a) Pale olive or yellowish clays.. 63'
- (b) Thin limestone bands, 2" to 3" thick, with broader (6" to 9" thick) yellow or pale olive clay partings .. 15'
- (c) Yellow and olive clays, the colours getting darker towards the bottom, which is greyish olive and gypsiferous .. 88'
- (d) Narrow light grey or blue bands, 3" to 4" thick, with olive partings 6" to 9" thick .. 10'

¹ Among the distinguishable genera are large *Lucinae*, *Corbulae*, *Velates* (cf. *schmideliana*), *Ovulae*, and a very large *Cerithium*. Of more normal size are a *Spondylus* and *Modiola* (cf. *subangulata*). As in bed 5 above, the fossils are generally mere casts.

² The fauna of bed 5 is distinctly dwarfed. Thus the *Corbulae* (internal casts) closely resemble casts associated with *subezarata* in Ghazij beds near Hindu Bagh, but are far smaller in size; the echinoids *Schizaster symmetricus* and *Micropsis venustula* are also far smaller than specimens from the Laki of Sind, but otherwise apparently identical; and the *Patellinae* of this bed are identical with ones of apparently the same horizon in Baluchistan, but both are smaller than a closely allied variety which appears at Spintangi, etc. Perhaps the first return of marine conditions, after the interlude of the "Lower Chharat," was attended by unfavourable circumstances for its fauna, for the forms of bed 5 are as dwarfed as those of bed 10 are large.

| | |
|---|------------------|
| (e) Tough, bright yellow-ochre, limestone band | 2'6" |
| (f) Shaly olive to blue-grey gypsiferous clays, with some reddish brown limestone bands or lumpy concretions | 145' |
| Total | 324 feet. |
| (12) Nodular reddish brown clays (very similar to the upper part of bed (8)), weathering to dark crimson or claret colour | (base not seen). |

Of the above series, beds 1 to 8 are to be seen in many places round Kohat, and one is apt to get the impression that bed 8 is the lowest member of the local Eocene succession. The whole of the above series, however, from 1 to 12, can be seen exposed in the bed of a north-and-south running water course, about 4 miles east of the town. It is mainly upon the evidence of this exposure that I have fixed the details of beds 9 to 12, which are more clearly seen there than at any other spot. The presence of the series taken as a whole, however, can be made out for over a mile to the west (*i.e.*, to within 3 miles of Kohat, where it seems to disappear entirely) and for 4 miles to the east; after which it probably continues over the Jowaki border.

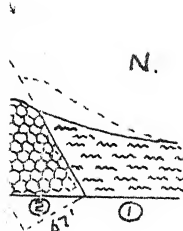
A section of the series down the above north-and-south water course is given in Fig. 2 attached.
















The Series at Bahadur Khel.

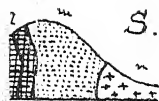
While making out this series at Kohat, it seemed that part of it, at any rate, could be matched very closely by the beds overlying the gypsum at Bahadur Khel. Tracing the beds along the ridge (through which the Bahadur Khel road tunnel passes) for about 2 miles to the east and $\frac{1}{2}$ a mile to the west, I found that although the overlying sandstones, which Mr. Wadia has identified as Kamliar, are different from the Murree bed (No. 1) at Kohat, and although the Kohat limestone and shale beds (2 to 4) are only represented by a very reduced and rather obscure Nummulitic limestone element at Bahadur Khel, yet the presence in the latter of the typical *Gryphæa*, elsewhere apparently limited to the Nummulite shale, or bed 4, seems to indicate that that bed at least is present at Bahadur Khel. Then the next bed (Kohat No. 5) can be very distinctly recognised underneath this limestone. The correspondence is pretty clear even over the tunnel, where the clays are very crushed, disintegrated, and covered with detritus, but is much more easily seen in a water course section through the same ridge (and strike) 2 miles to the east.

I give, on the attached sheet, an enlarged section (Fig. 6)

SYMBOLS USED.



-  Kamlial Beds.
-  Murree Beds.
-  Bed (2). Wynne's "Alveolina" Limestone. (Khirthar.)
-  Bed (3).
-  Bed (4). Pinfold's "Nummulite Shale." (? Lower Khirthar ?)
-  Bed (5). Pinfold's "Limestones and Shales." (Uppermost Laki)
-  Oyster Band, within Bed (5).
-  Bed (6)
-  Bed (7)
-  Bed (8)
- } Pinfold's "Lower Chharat." (Ghazij Shales.)
-  Bed (9)
-  Bed (10)
- } Vredenburg's "Alveolina" Limestone. (Mid-Laki.)
-  Bed (11)
-  Bed (12)
- } ? Meting Shales ?
-  Rock Salt.



uish Gray clays,
Limestone, 30'.
own or Yellow

Fig. 2.
Section down Nullah, 4 miles East of Kohat.

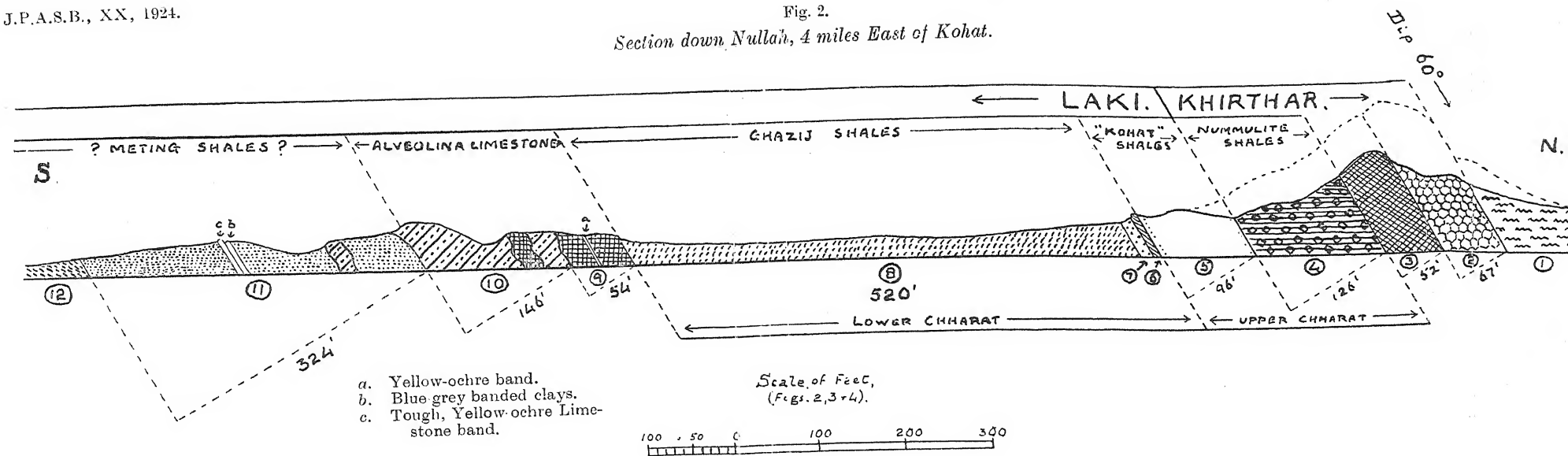


Fig. 3.
Section between Rifle Ranges and Shekhan, 2 miles E. of Kohat.

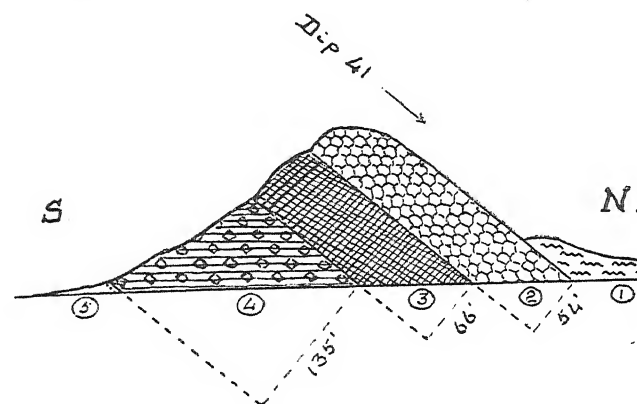
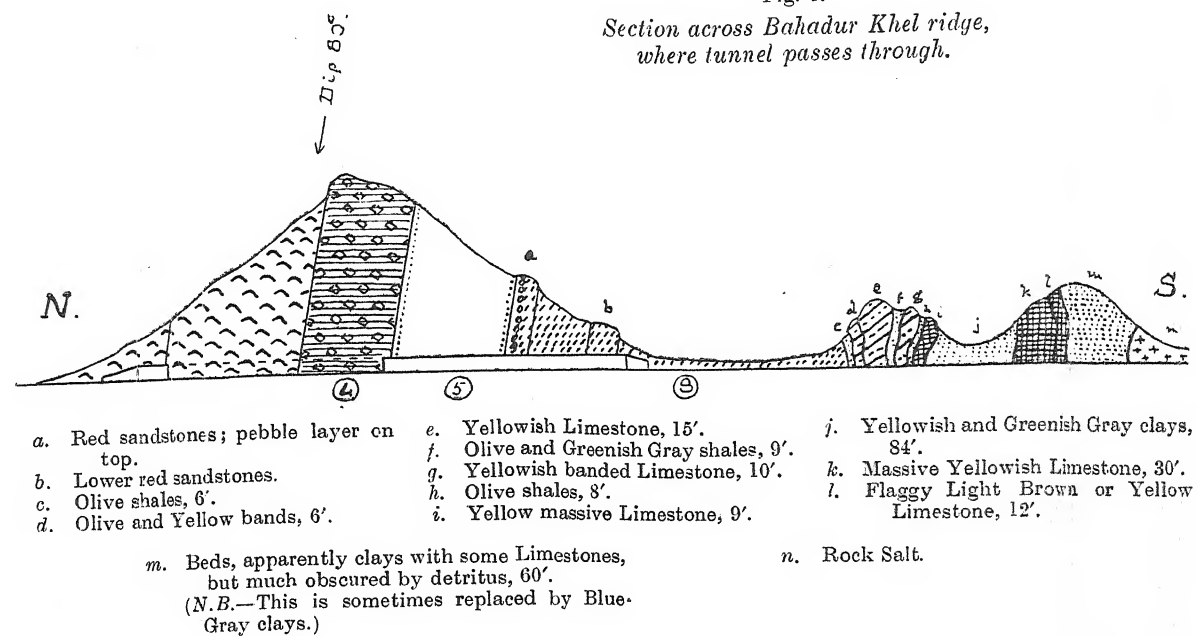


Fig. 4.
Section across Bahadur Khel ridge, where tunnel passes through.



SYMBOLS USED.

- Kamliar Beds.
- Murree Beds.
- Bed (2). Wynne's "Alveolina" Limestone. (Khirthar.)
- Bed (3).
- Bed (4). Pinfold's "Nummulite Shale." (? Lower Khirthar?)
- Bed (5). Pinfold's "Limestones and Shales." (Uppermost Laki.)
- Oyster Band, within Bed (5).
- Bed (6)
- Bed (7) Pinfold's "Lower Chharat." (Ghazij Shales.)
- Bed (8)
- Bed (9)
- Bed (10) Vredenburg's "Alveolina" Limestone. (Mid-Laki.)
- Bed (11)
- Bed (12) ? Meting Shales ?
- Rock Salt.

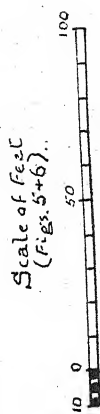


Fig. 5.
*Enlarged portion of Fig. 2.
to show details of Bed (5).*

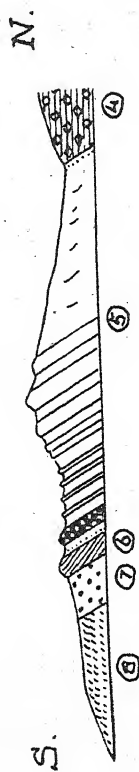
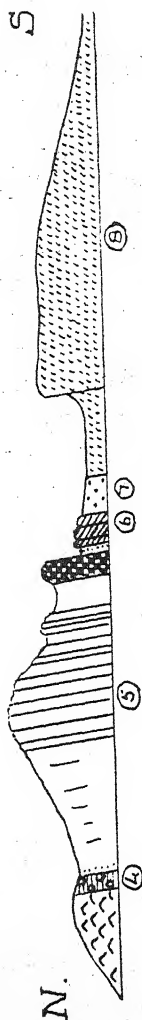


Fig. 6.
*Section across Bahadur Khel ridge,
down nullah 2 miles E. of tunnel.*



of the beds there, for comparison with a similarly enlarged section (Fig. 5) of the corresponding portion of the series at Kohat. The three distinctive portions of bed No. 5 appear in the Bahadur Khel section much as in the Kohat one; and the faunal similarity, to which I will return presently, includes the presence of *N. lævigatus scabra* in the uppermost portion of the bed, *N. cf. ramondi* in the lower, and the *Ostrea* band at the base. Besides this, the next beds below also appear in corresponding series; thus bed No. 6 is clearly seen in this small water course at Bahadur Khel, as also bed No. 7. Bed No. 8 is then represented by the mass of brick-red clays with sandstone bands, recognised by every visitor to Bahadur Khel as being the lowest member of the series overlying the gypsum (see Wynne's *Memoir*, pp. 24, 51, etc.).

These beds, - 6, 7, and upper clay portion of 8, - are apparently crushed out or much reduced, shewing traces only, 2 miles to the west, in the section over the tunnel (see attached Fig. 4), where the upper hard sandstone band is found in juxtaposition with fractured and disturbed lower elements of bed 5. With reference to this latter section, however, (Fig. 4), it is interesting to note that the extent of lining in the road tunnel below, taken with the dip of the rocks, implies that bed 5 here, as well as 2 miles to the east (Fig. 6), is still about the same in total thickness as at Kohat (Figs. 2 & 5), i.e., 90 to 100 feet. This is not otherwise easy to see, owing to the rather tumultuous arrangement of rocks on top of the hill over the tunnel.

The Correlation of Kohat Bed No. 5.

Having thus found an apparently corresponding series, in part at least, at Kohat and Bahadur Khel, I then spent some time in making as good a collection as possible from the most productive horizon (in this case, bed 5) common to both, collecting specimens from that level—as exactly as it could be determined—alone. These were sent by me, some to the British Museum, but mostly to the Geological Survey Offices at Calcutta; and the following have now been kindly identified for me by Dr. Coggin Brown, from this "datum line" at Kohat and Bahadur Khel:

| | Kohat. | Bahadur Khel. | Remarks. |
|---|--------|------------------|------------------------------------|
| Species identified : | | | |
| <i>Nummulites perforatus</i> , d'Orb. | + | — + | or <i>N. crassus</i> . Top of bed. |
| <i>N. perforatus</i> var. <i>obesa</i> .. | + | — | Top of bed. |
| <i>N. lævigatus</i> , Lamarck .. | + | — + | Top of bed. |
| <i>N. lævigatus</i> var. <i>scabra</i> .. | + | — + ? | Top of bed. |

| | Kohat. | Bahadur Khel. | Remarks. |
|--|--------|------------------|-----------------|
| <i>N. utacicus</i> , Leymerie .. | + | — + ? | Throughout bed. |
| <i>Assilina spira</i> , de Roissy | + | — — — | Throughout bed. |
| <i>Alveolina oblonga</i> , d'Orb.. | + | — — + ? | Throughout bed. |
| <i>Alveolina javana</i> , Verb .. | + | — — — | Throughout bed. |
| <i>Hemiaster digonus</i> , d'Arch. | + | — — — | |
| <i>Schizaster symmetricus</i> , D. & S. | — — — | + | |

Species doubtfully identified :

| | | | |
|---|-------|---------|--------------------|
| <i>Nummulites</i> cf. <i>carteri</i> , d'A. & H. | + | — — — | Top of bed. |
| <i>N.</i> cf. <i>ramondi</i> , DeFr .. | + | — — + | Lower part of bed. |
| <i>Assilina exponens</i> , J. de C. Sow | + | — — — | Top of bed. |
| <i>Patellina</i> sp | + | — — + | Throughout bed. |
| <i>Micropsis</i> cf. <i>venustula</i> , D. & S. | + | — — — | |
| <i>Cardium greenoughi</i> , d'A. & H. | + | — — + ? | |
| <i>Natica epiglottina</i> , Lam .. | — — — | + | |
| <i>Velates schmideliana</i> , Chemn. | + ? | — — + | |

Genera identified :

| | | | | |
|-------------------------------|----|-------|---------|----------------------------|
| <i>Euspatangus</i> .. | .. | + | — — + | |
| <i>Linthia</i> .. | .. | + | — — — | |
| <i>Metalia</i> .. | .. | — — — | + | |
| <i>Micropsis</i> .. | .. | Many. | Many. | Very small speci- mens. |
| <i>Porocidaris</i> .. | .. | + | — — — | Spines only. |
| <i>Leiocidaris</i> .. | .. | + | — — + ? | Spines only. |
| <i>Trochosmilia</i> .. | .. | + ? | — — + | |
| <i>Corbula</i> .. | .. | + | — — + | |
| <i>Crassatella</i> .. | .. | Many. | Many. | |
| <i>Cardita</i> .. | .. | — — — | + | |
| <i>Cardium</i> .. | .. | + | — — + | |
| <i>Lucina</i> .. | .. | Many. | Many. | |
| <i>Chama</i> .. | .. | Many. | Many. | |
| <i>Vulsella</i> .. | .. | + | — — + ? | |
| <i>Spondylus</i> .. | .. | + | — — + | |
| <i>Ostrea</i> (small species) | .. | Many. | Many. | Band at base. |
| <i>Plicatula</i> .. | .. | + | — — — | |
| <i>Mytilopsis</i> .. | .. | — — — | + | |
| <i>Conus</i> .. | .. | Many. | Many. | |
| <i>Fusus</i> .. | .. | + | — — — | |
| Limbs of fossil crabs | .. | — — — | + | |

The query marks indicate forms found by me which seem closely to resemble those identified by Dr. Coggin Brown.

I admit that the identification might be closer; but it tends to improve with time. The trouble is that the Bahadur Khel fossils are generally in a poorer state of preservation than the Kohat ones, making specific identifications rarer.

Still, the whole aspect of the two sets of fauna does seem very similar; and this goes to reinforce the other points of resemblance already noted,—i.e., the similar succession of physical divisions within the bed, and the similar distribution of certain forms within those divisions; also the presence of similar beds above and below (No. 4 above, and Nos. 6, 7 and 8 below).

The strongest individual evidence of identity lies, of course, in the common presence at top of this bed of *N. laevigatus* and *laevigatus scabra*, together with the associated bulky form of *N. perforatus* (which I take to be *crassus*, although the Survey have not actually said so). There is also the *Patellina* form in this bed, both at Bahadur Khel and at Kohat, as well as *N. cf. ramondi*. Although the specific names of these last two types may be open to question, there can be no doubt, as the forms themselves are so strongly characterised, that the Bahadur Khel specimens belong in each case to the same species as the Kohat ones.

I may also mention that I have found fragmentary exposures of apparently the same bed 5 at places between Kohat and Bahadur Khel, e.g., at Banda Daud Shah, where the Nummulitic limestone is overlain by Kamlial beds, underlain by red sandstones and clays, and shows at its base a few molluscan casts together with the strongly marked *Patellina* form. Thus there seems to be a continuity of the bed traceable between Kohat and Bahadur Khel.

The series may really extend far further. Thus the limestone ridge which crosses the Bunu-Dardoni road just west of Saidgi (15 miles from Bunu, and 40 miles S.W. of Bahadur Khel) seems to be composed of just the same elements (beds 2 to 5 inclusive) as the upper part of the Kohat Nummulitic series. Indeed, I think that the series can be traced right into Baluchistan: thus I have found the same association of *N. laevigatus* with the identical *Patellina* in a narrow clay bed immediately underlying the Nummulitic limestone scarp behind Harnai Railway Station (70 miles east of Quetta). Beneath this bed I found others containing such Laki fossils as *Cardita depressa* and *Natica longispira*, while the lower levels of the scarp above it contained the unmistakable *Gryphaea* form of Kohat bed 4, together with globose Nummulites to all appearance similar to *crassus* from the same. I admit that I found what seem to be *Orthophragmina papyracea* at the top of this scarp, which is also of no great thickness, is in direct continuation of the rocks

at Spintangi, and is itself marked as "Spintangi" by Vredenburg. I cannot help feeling, however, that the basal elements of this scarp, at any rate, are identifiable with beds 4 and 5 of Kohat, i.e., Pinfold's two "Upper Chharats."

The taxial position of Kohat Beds 5 and 10.

If, then, the faunal similarity of the clay bed above the tunnel at Bahadur Khel to bed 5 at Kohat, together with its apparently similar internal structure, also its similar *distribution* of forms, and its position between similar overlying and underlying beds, be taken to indicate that the identity of this datum line (bed 5) can be allowed, the question next comes as to what its exact taxial position may be in terms of more general reference.

Now here, I think that a distinction should be drawn between the forms which only appear at the top of the bed, and those which are common to it as a whole; for while the former, namely, the Nummulitic types *perforatus*, *perforatus obesa*, *laevigatus*, *laevigatus scabra*, and *carteri* are all Khirthar forms (vide *Records Geol. Surv. Ind.*, Vol. XXXIV, pp. 87, 88, 94, etc.), we find that the whole fauna of the remainder of the bed seems to be essentially Laki. There is, indeed, only one apparent exception to this, which we find in the presence of *Assilina spira*, which Vredenburg regarded as a late-middle and upper Khirthar form (*ibid.* p. 94, etc.). In Europe, however, *A. spira* precedes *A. exponens*; so there should be little difficulty felt in admitting its similar early appearance in this country, provided that the facts show it to be associated with an otherwise early fauna out here. And that, I think, is what we do find in this case. The following may therefore be noted in regard to this fauna:

N. atacicus: A typical Laki form (*ibid.* p. 94.)

Alveolina oblonga: A Sparnacian form of Europe, which became very abundant in the Cuisian (*Pal. Ind.*, N.S., Vol. V, Mem. 3, pp. 39, 42). As the Cuisian is represented by the Indian Ranikot (*Pal. Ind.*, N.S., Vol. III, Mem. 1, Pt. I, p. xviii), the Laki is about as high as we can place this form.

Alveolina javana: Associated with *Assilina leymeriei* in Borneo (*Rec. Geol. Surv. Ind.*, Vol. XLIV, Pt. 1, p. 55). The latter is the megaspheric form of *Assilina granulosa*, an essentially Laki species (*Rec. Geol. Surv. Ind.*, Vol. XXXIV, pp. 87, 94).

Hemiaster digonus: A lower Laki form (*ibid.* p. 193).

Schizaster symmetricus: A lower and middle Laki form (*ibid.* p. 193).

N. cf. ramondi: Probably the megaspheric form of *planulatus* (*ibid.* pp. 194-195); in which case it characterises the

uppermost Ranikot (p. 94), and the Laki would be as high as we could place it.

Assilina exponens: An upper Laki and Khirthar form (p. 94).
Patellina sp.: An upper Laki form in Baluchistan.

Microopsis cf. *venustula*: A Laki species (*ibid.* p. 189).

Cardium greenoughi } These all correspond to types enumerated
Natica epiglottina } by d'Archiac and Haime from the lower
Velates schmideliana } Eocene (Ranikot and Laki) of Sind.¹

Euspatangus: A Laki and Khirthar genus (*ibid.* pp. 194-105).

Linthia: A Ranikot to Khirthar genus (*ibid.*).

Metalia: A Laki genus (*ibid.*).

Porocidaris: A Laki genus (*ibid.*).

Leiocidaris: A Laki genus (*ibid.*).

Trochomilia: From the so-called "Ranikot" (*i.e.*, including Laki) of Duncan. Absent from his "Khirthar" (*Pal.*

Ind., Ser. XIV, Vol. I, Pt. 1 (New Pt. 2) p. 26; cf. p. 59).

Corbula

Crassatella

Cardita

Lucina

Chama

Vulsella

Spondylus

Conus

Fusus

These are all genera enumerated by d'Archiac and Haime from the Ranikot and Laki (mostly from the Laki) of Sind.¹

In other words, with the doubtful exception of *spira* itself, there is not a single form which is extraneous to the Laki or yet lower levels, while there are many that are peculiar to those levels.

Laying aside, then, the question of correlating the upper beds, 2 to 4, which may be taken simply as "Khirthar" for present purposes, it seems that the bulk of bed 5 should be accepted as Laki. It is no doubt probable that it represents an uppermost Laki horizon, since so many overlapping Khirthar elements are found at the top of it; but it seems clear that the uppermost Laki is the *highest* position to which we can assign it.²

¹ According to Sir H. Hayden, most of d'Archiac and Haime's Eocene mollusca from Sind came from the Laki beds of those parts. Only a few came from the Ranikot, and *none* from the Khirthar. Thus identifications with those types must tend to imply pre-Khirthar horizons. Hayden's remark about Laki fossils being often mere casts, would also typically apply to fossils of the bed under examination (*Rec. Geol. Surv. Ind.*, Vol. XLIII, Pt. 1, pp. 14-15).

² It is interesting to see that Dr. Pascoe, who apparently also identifies these trans-Indus Nummulitic rocks with the Chharats of the Punjab (vide his map of Banda Daud Shah, on Plate 84 of *Mem. Geol. Surv. Ind.*, Vol. XL, pt. 3, etc.), confirms the appearance of *Assilina spira* just above the Red Clay zone, *e.g.*, at Kotahri (p. 414) 15 miles S.E. of Kohat, where the overlying pelecypod bed (apparently my No. 5) also

N.B.—It probably supplies a passage-bed between representatives (*i.e.*, Pinfold's "Lower Chharat" and "Nummulite shale") of the Upper Laki and Lower Khirthar zones of Sind and Baluchistan, thus filling a gap at the "stratigraphical break" reported between the latter by Vredenburg (*Rec. Geol. Surv. Ind.*, Vol. XXXIV, p. 182, etc.). As it thus seems to represent a new zone, I suggest for it the name "Kohat" shales, as overlying the Ghazij shales proper, and linking them to the Khirthar.¹

Accepting this bed, then, as representing the uppermost zone of the Laki, it follows that we may expect all beds *below* this "datum line" at Kohat and Bahadur Khel to be also of Laki character, if not still lower. This, too, seems to be borne out by the fact that bed 10 at Kohat appears to contain an essentially Laki fauna, including the typical Laki combination of forms, *N. ataticus* and *Assilina granulosa*.

Now both the character and position of bed 10,—as a Laki limestone which is packed with *Alveolina*, and underlies the local representatives of the Ghazij shales,—distinctly suggest that it (together with bed 9) is probably the local representative of the mid-Laki "Alveolina limestone" of lower latitudes. This idea, too, seems to be corroborated by the echinoids found in bed 10, namely, a *Conoclypeus* with Ranikot affinities, and *Hemiaster apicalis* which "characterises" the Alveolina limestone of Sind (*Rec. Geol. Surv. Ind.*, Vol. XXXIV, p. 193). It seems better, therefore, to regard beds 9 and 10 as an extension of the mid-Laki "Alveolina limestone," than to treat them as an obscure element with a similar fauna and position.

If, therefore, beds 9 and 10 are rightly regarded as "Alveolina limestone," it then seems possible that beds 11 and 12 may correspond to the next lower "Meting shales"; but here we have no fossil evidence, as yet, to go on.

The Bahadur Khel Gypsum, and Kohat beds 9 to 11.

I now come to some interesting facts brought out at a recent visit paid by Mr. Wadia to the Bahadur Khel deposits. On examining the gypsum underlying the red clay zone (Kohat bed 8), Mr. Wadia found that it was not homogeneous, but

contains *N. ataticus*, *N. laevigatus* and *Assilina granulosa*. This mention of *granulosa* above the Red Clay zone is peculiarly interesting, as it gives fresh proof that bed 5, at least, should be regarded as Laki, not Khirthar.

¹ I suggest the name 'Kohat' because this particular bed seems to be better represented at Kohat than at any other place I know, except perhaps Chharat; and the name "Chharat" is already engaged. Any name, however, which Mr. Pinfold might prefer, as the original describer of this bed, would be gladly accepted by me. All I suggest is, that a definite name for the bed would be a convenience.

consisted in great part of limestone bands in process of alteration into gypsum. This then, in the first place, implies a striking confirmation of one of Dr. Murray Stuart's most interesting contentions, namely that, whatever the origin of the Salt may be, the overlying Gypsum is not necessarily a deposit from evaporating marine waters, but is often a secondary product of reaction between sulphur-bearing lower beds and calcareous upper ones (see *Records Geol. Surv. Ind.*, Vol. L, Pt. 1).

A second suggestion arising out of Mr. Wadia's discovery is that the correspondence of the Bahadur Khel beds with those of Kohat may not end with bed 8, but that the gypseous masses at Bahadur Khel may quite possibly represent an altered form of beds 9 and 10 at Kohat; so I would like to point out the following facts which tend to support this idea. First, that although most of the gypsified mass is very altered, white, soft, and largely re-arranged by solution and re-deposition, yet the section near the tunnel does distinctly indicate an original arrangement in successive bands of limestone (now gypsified) with partings of olive clays; while the still unaltered central portions of fragments broken off the gypsified bands show that the original limestones must have been of light grey, yellowish, or brownish tints. Many fragments from the less pure gypsum have also a strong yellow-ochre colouring, only comparable to the yellows of bed 10 at Kohat. Second, that the lower portion of the gypsum, where seen, is found to overlie or be interstratified with dark olive or even blue-grey clays, suggesting gypsiferous bed No. 11 of the series at Kohat.

It is also interesting to see that, allowing for the differences in dip, the total thickness of the gypsum mass at Bahadur Khel seems to agree with that of beds 9 and 10 at Kohat.

As regards fossils, I have not so far found any trace, in the Bahadur Khel gypsum, of the larger fossils so common to bed 10 at Kohat. Mr. Wadia and I have, however, found unrolled fragments of yellowish rock apparently, or at least possibly, in situ, which are packed with small *Nummulites* and *Alveolina* after the fashion of bed 9 at Kohat. These came from zones (g) and (i) of attached Fig. 4, and so from the part of the gypsum which would, in all probability, correspond to bed 9.

Conclusion.

I would suggest that the following facts, (1), the appearance at Bahadur Khel of a Nummulitic series similar to that at Kohat, and including a bed resembling in detail bed 5 at Kohat; (2), the location of Kohat bed 5 as uppermost Laki at highest; (3), the discovery at Bahadur Khel of gypsified lower beds corresponding in position, general structure, and apparent original nature, to the next lower beds at Kohat which contain mid-Laki fossils; and (4), the absence of any other, or distinctly

new element between these beds and the Salt; seem to justify one in forming two conclusions:

- I. That the gypseous series at Bahadur Khel consists, partly at least, of altered sedimentary deposits whose original character was that of interstratified limestones and clays; and
- II. That these, the lowest beds above the Salt, are probably of "Laki" character, and correspond to the mid-Laki "Alveolina Limestone."

If it be true that the Bahadur Khel gypsum is an altered form of the mid-Laki Alveolina limestone, then the fact may help to identify the source of the Punjab oil. Both Dr. Pascoe and Mr. Pinfold have noted that the oil seems to come from a horizon *below* the "Lower Chharat" (*i.e.*, Kohat beds 6 to 8, or Wynne's "Red Clay" zone). Now I have several times found fossils at Bahadur Khel which struck me as both feeling and smelling oily. There is, of course, no "dome" structure to collect oil there; but if oil-producing beds do exist below the red clay zone, it seems quite possible that small seepages might, from time to time, find their way to the surface, thus producing the occasional faint traces I have noticed. As the presence of the Salt seems to preclude the possibility of oil coming from levels *below* the gypsum,¹ the latter (or the deep-seated and still unaltered portion of the beds represented by the same) is probably the source of the oil at Bahadur Khel (and so *one* at least of the sources of oil elsewhere).

I would therefore point out how repeatedly Wynne, in his great Memoir on the Trans-Indus Salt, refers to finding petroleum, alum, and bitumen in the gypsum and upper layers of salt of these regions (*Mem. Geol. Surv. Ind.*, Vol. XI, pt. 2, pp. 126-127, 129, 136, etc.), also coal and gypsified Nummulites in clay beds between the Salt and the gypsum (p. 128), as well as limestone *in* the gypsum (p. 136).

All such references seem to accord well with the conclusions suggested in this paper; so I would further suggest that prospectors for oil might consider those areas where there is reason to suppose that lower Laki rocks exist beneath a sufficient capping of upper Laki or later impervious beds to allow of the storage of oil. Such an area seems to me to exist within the triangle of ground between Fort Munro, Dehra Bugti, and Spintangi (see Plate 12 of *Rec. Geol. Surv. Ind.*, Vol. XXXVIII, pt. 3). I mention this because I have seen what seem to be lower Laki lignites and limestones, capped by Ghazij shales, under the "Spintangi" limestones of the Harnai railway region, also a sulphuretted hydrogen spring and thick bed of

¹ Including, of course, associated clays and other beds above the Salt.

gypsum at Spintangi itself.¹ I therefore suspect that the large area of "Ghazij" shales and "Spintangi" limestone, shown by Vredenburg in the triangle named, may cover a lower Laki and oil-producing horizon.

ADDITIONAL NOTE.

Since the above went to press, I have been able to study the subject further at the Offices of the Geological Survey in Calcutta. The following are the results :—

(a) It now seems that the small *Assilines* found associated with the *Ostrea* band at the base of bed 5 are really *leymeriei*, not *spira*. This does not invalidate the references to true *spira* found in this bed, but only concerns the supposed "small variety" found at its base. If these are, as it now seems, really *leymeriei*, they further confirm the attribution of a Laki horizon to bed 5.

(b) I find that Mr. Vredenburg, in an unpublished MS. on Indian Alveolines, regards *oblonga* as a species which does not extend into the Indian Khirthar. Its presence throughout bed 5, therefore, still further confirms the Laki character of the latter.

(c) The *Patellina* form, so often mentioned in my article, was referred to that genus by Dr. Coggin Brown, following Carpenter. In that he was correct; but I think that Carpenter did wrong in eliminating Carter's original genus *Conulites*. So, since my form is generically identifiable with *Conulites cooki*, while very different from other types also referred by Carpenter to *Patellina*, I now regard *Conulites* as a preferable generic name for this form, and have described it in a separate paper under the name *Conulites kohaticus*.

(d) The *Conoclypeus* in bed 10 proves to be a new species, and has been described by me as such, in a separate paper, under the name *Conoclypeus pilgrimi*.

(e) The association of *Orbitolites complanatus* with *Alveolina oblonga* appears to be typical of the Alveolina Limestone of both Sind and southern Thibet, while it does not seem to have been found at other horizons in India. This, therefore, further confirms the attribution of an Alveolina Limestone level to beds 9 and 10 at Kohat.

¹ Dr. Pascoe, in his Memoir referred to above, shows how constantly sulphuretted hydrogen traces are associated with petroliferous beds (cf. pp. 396, 398, etc.). He also shows the association of certain lignites and coals with oil (pp. 485, 487), and that these lignites, etc., are probably marine or estuarine (pp. 487-488). Now the lignites I have seen in mid-Laki or basal Ghazij shale beds of Baluchistan (Harnai and Hindu Bagh) either overlie or are interstratified with limestones, and are associated with a mixture of brackish and marine shallow-water forms, *Cerithium* and *Corbula*, as well as gypsum.

(f) A very globose Alveoline, recently found by me near the base of bed 10, in its extension to the west of Kohat, appears to be *pasticillata*; a species which indicates (according to Vredenburg's MSS.) a Meting Shale horizon. This rare specimen is probably a survival from the horizon of the (locally unfossiliferous) blue-grey clays below, which would thus appear to correspond to the Meting Shales. I may add that these same blue-grey clays, traced still further westwards to Thal, are there found to overlie, directly, certain beds with a typical uppermost Ranikot fauna; namely, *N. planulatus* together with characteristic upper Ranikot corals, etc. Needless to say, this exactly agrees with an attribution of a "Meting Shale" horizon to the lowest beds at Kohat.

Thus further data seem to confirm the fact that the entire Laki series is represented at Kohat, as shown in Fig. 2 above.

Radioactivity of some Indian Minerals.

By N. A. YAJNIK, M.A., A.I.C. AND SARAL JANG
KOHLI, M.Sc.

Most of the work on Radioactivity has been done in England, Germany, and America. As far as the authors are aware Dr. H. E. Watson and his co-workers have done the only important work in this extremely interesting branch of science in India. An investigation of the Radioactivity of Indian minerals forms, therefore, an important subject for research.

Three general methods can be employed for the examination of radiations from radioactive bodies, depending upon

- (i) The action of the rays on a photographic plate.
- (ii) The ionising action of the rays on the surrounding gas.
- (iii) The luminosity produced by the rays on a screen of zinc sulphide, barium platinocyanide or willemite, etc.

Out of these three methods, the second is the most suitable for quantitative determinations. It is both rapid and accurate.

EXPERIMENTAL.

(i) *An Outline of the Method.*—In the beginning an apparatus was set up for comparing the activity directly by spreading a layer of the mineral under examination on a brass plate, charging this to a high potential and measuring the rate of fall of an electroscope leaf connected to another plate parallel to the first one and 1 c.m. apart. This method was found to be unsatisfactory and was given up after a number of attempts.

Joly's "Solution Method" was used as follows: An average sample of the mineral was ground well in an ordinary mortar and then in an agate mortar. It was then sieved through a 100 mesh sieve and ground in the agate mortar again. Ten grams of this were then accurately weighed in a platinum dish. Twenty-five to thirty grams of well-powdered fusion mixture were mixed well with the pulverised mineral. It was then fused on a blow-pipe burner, care being taken that the flame did not play in the dish. After cooling the dish and adding distilled water to it, it was heated to boil the water for some time. The solution was then decanted and filtered, the filtrate being collected in a clean flask of about 250 c.c.

capacity. The residue was again boiled with water and the solution decanted and filtered. Pure hydrochloric acid was then added to the residue and the whole heated again. The solution was then filtered. By repeated treatment with hydrochloric acid most of the residue went into solution. Any remaining, was fused again with the fusion mixture and digested with hydrochloric acid. Two or three fusions were required in every case. The acid solution was filtered in a separate flask. A space of about 100 c.c. was left in the flask in every case. Every mineral thus gave two solutions, an "alkaline solution" and an "acid solution." The flasks were well corked with well-fitting rubber stoppers and left for more than three weeks, after which time the solutions were examined.

A flask was then removed to the testing apparatus. The electrical connections and stop-cocks were examined and before testing every solution it was ascertained that the apparatus was perfectly air-tight by attaching a mercury manometer to the tube which was to convey the air containing the emanation and evacuating the whole apparatus by means of the pump. The certainty of every joint and connection being assured, the flask A (Fig. 1) was kept just below the tube which was to convey the emanation, the stopper removed and the flask fitted in. This took about a second or even less, so that there was no danger of any leakage by diffusion.

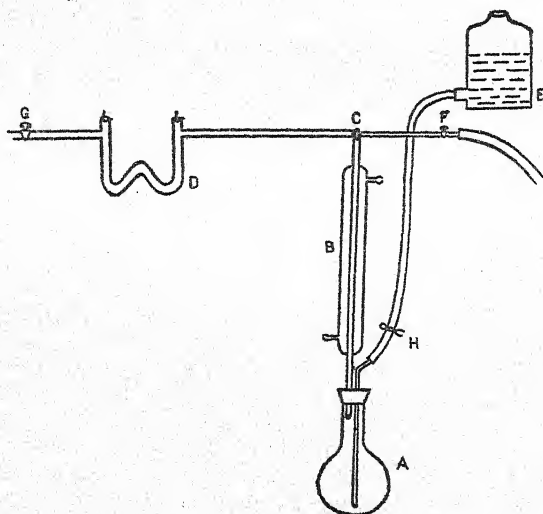


Fig. 1.

The natural leak of the electroscope having been determined in every case, the testing vessel and the connection

tubes were then exhausted and the three-way tap turned so as to connect the flask with the testing vessel. The solution was then boiled and the boiling was continued for about half an hour after which the clip H was opened to allow distilled water from the Jar E to replace the air in the flasks and thus sweep out any emanation left into the testing vessel. The tap F was then momentarily opened and C similarly turned which brought the air inside the ionising vessel to the atmospheric pressure, and also swept any emanation in the connecting tubes into the ionising vessel. The taps C and F were then closed.

With the emanation in the testing vessel, the leak of the electroscope leaf was again noted by a good stopwatch. The average of a number of readings, which were nearly always concurrent, was taken. The natural leak of the electroscope was subtracted in every case from this and the number of divisions moved per minute calculated. Knowing from the standard solution the radium content corresponding to one scale division per hour, the radium content of every mineral was thus calculated and expressed in 10^{-12} grm. of radium per gram of the mineral.

(ii) *The Electroscope.*—The electroscope employed was similar to the Burnstead electroscope¹ with but slight difference in detail. A brass rod carrying the earthing key was fixed to the base of the apparatus. The sensitiveness of the electroscope could be varied a great deal, of course, it depended also on the thickness and breadth of the gold leaf employed.

(iii) *The Gold Leaf.*—The sensitiveness of the electroscope varied enormously with the thickness of the leaf. A thicker kind of leaf was tried and it was found that for the same length and breadth the sensitiveness was about one-eighth of that when the thinner kind was used. A thin leaf from the gold beaters was used and its breadth was reduced to a little more than one millimeter. The cutting and mounting of such a thin leaf offered some difficulty, but after a good many attempts the right sort was mounted.

(iv) *The Earthing Key.*—For earthing (in this case connecting to the middle potential) and insulating the electroscope leaf it is necessary to employ a specially-constructed key (Fig. 2). This was made as follows. A brass plate, about $1\frac{1}{2}$ c.m. broad and 7 c.m. long, was turned upright near one end leaving about one c.m. A steel spring was soldered to this end and bent so that the other end of the spring was just above the other end of the plate, but higher up. A brass cup was soldered to the plate at this end and in this cup stood a quartz rod 4 c.m. in length, kept in position by sealing wax. On its upper end the quartz rod carried another brass cup as shown

¹ Phil. Mag. 1911 XXII, p. 909.

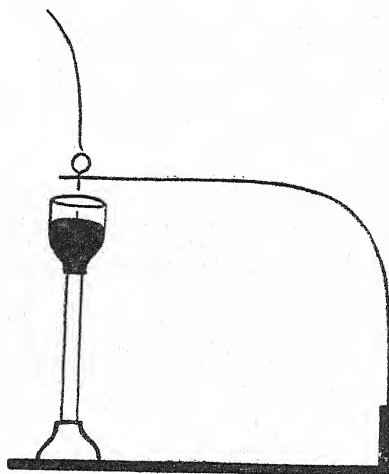


Fig. 2.

in the figure. A small brass pointer made to project from the spring was dipping in the mercury contained in this cup. A thread fastened to this pointer was led outside through a hole in the case of the apparatus and passed over a pulley. By pulling the thread the pointer was disconnected from the mercury cup and on releasing it the pointer fell back in the mercury cup on account of the steel spring. A wire soldered to the mercury cup was connected to the gold leaf of the electroscope. A hole was cut in the brass plate and two ebonite discs with similar holes were placed one below and the other above the brass plate and the whole screwed on to the stand rising from the base of the electroscope. The brass plate was kept at the potential to which the leaf was to be charged. In the position of rest the leaf remained at this potential, but on raising the pointer, by pulling the thread, the connection was broken and the leakage of the charge of the leaf compared by the motion of the leaf.

(v) *The Case for the Apparatus.*—For keeping the electroscope safe from the external electrostatic disturbances a metal case was constructed and used. The necessary windows for the microscope, etc., were cut and wire-gauze soldered on to those. The case was earthed.

(vi) *The Ionisation Chamber.*—The emanation from the solution of the mineral was conveyed into an ionisation vessel which consisted of a copper vessel in which passed a copper rod but was separated from the former by the high insulation of its stopper. At first a filter-flask was silvered inside and the silver coating connected to earth, but the difficulty of

making it air-tight compelled its rejection. A copper flask with a side tap was then taken. The stopper was constructed of an ebonite disc cut to fit the copper vessel. The guarding was made from a cork-borer which was passed through the ebonite disc and cut. Through this metal tube passed a tube of bakelite, through which in turn passed the copper rod (Fig. 3). A wire was soldered on to the outer end of the rod. The rod was made to project inside the case of the electroscope and thus only a very small length of wire was required for connecting it to the binding screw connected to the gold leaf. The distance was made as small as possible. The vessel itself was earthed by connecting it to a water pipe.

Making the stopper air-tight offered some difficulty. A mixture of beeswax and resin was used for making air-tight joints, it being melted there with a hot metallic rod, when the pressure of air inside the vessel was reduced. This stopped any small holes. Care was taken that the wax did not spread over the insulator. The portions of high insulation were scraped. The stopper was then placed in position and wax melted around it. To test that the apparatus was air-tight, a mercury manometer was attached to it and the air exhausted. The pump was stopped and the apparatus left for some time when, if the apparatus were not air-tight, the mercury level would move. If there was any leakage the wax was melted again on all the joints and the vessel again tested for its being perfectly air-tight.

(vii) *The Drying Tube*.—In order to remove any water vapour or hydrochloric acid rising from the boiling solution, a drying tube was constructed and fused to the rest of the apparatus. It was made from an ordinary tube of broad bore, bending it into W shape and fusing one arm of the W to one of the arms of the three-way tube. The other arm of the W was fused to a straight tube with a stop-cock. The two heads of the W tube were blown and opened just before beginning the experiment. For their stoppers two pieces of tube, one inch long, were blown into a ball on one side and drawn and fused on the other. After introducing the drying agents the stoppers were put in place and wax melted around them to make the whole air-tight. The substances employed for removing the moisture and hydrochloric acid were phosphorus pentoxide, fused calcium chloride and soda-lime. Care was taken that the phosphorus pentoxide did not choke the tube and thus check the passage of gases.

(viii) *Setting the Rest of the Apparatus*.—The second tube from the three-way stopper C (Fig. 1) was fused to another tube of a bigger bore serving as the tube of the condenser B through which passed a rapid current of cold water. The third horizontal tube C F was connected to a pump by means

of pressure tubing. The tube running down through the condenser passed through a rubber stopper at its lower end. This was to fit the flask A containing the solution. Another tube passing through the stopper and dipping in the solution was bent outwards and connected by rubber tubing to a reservoir of distilled water E. A clip H allowed or stopped the water. Water was allowed to run in to displace any emanation remaining in the flask, after the solution was boiled. The whole apparatus was mounted on a T-shaped wooden stand with one arm longer than the other and fixed on it with clips, holes being cut for the free movement of the stop-corks. The stand was held by clamps by big steel rods clamped to the stone table.

(ix) *The Electrical Connections.*—A diagram showing the

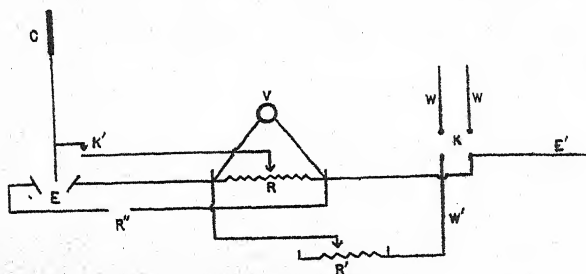


Fig. 3.

different electrical connections while working is given (Fig. 3). The two wires W, W—one interposed by a fuse wire for safety, in case short circuiting should take place—connect the key K with the source of potential, the city current. One wire E' from here leads to a pipe for earthing the connection. Another wire rising from the same point is connected to one end screw of the variable resistance R of 1700 ohms. The other wire W' connects the other end of the key with another variable resistance R', the rider of which is connected to the other end of R. Two wires from the two ends of R lead to a voltmeter V, which notes the difference of potential between the two ends of R and hence the two plates of the electroscope E which are connected to this. One of these wires passes through a water resistance R'' for ensuring the safety of the gold leaf even if it were to touch one of the plates. The rider of the variable resistance is connected to the gold leaf through the earthing key K'. In this case instead of connecting it to earth it is connected to about the middle point of R. The rod carrying the gold leaf is connected to the copper rod C of the ionisation vessel through a mercury cup. The ionisation vessel itself is earthed.

(x) *Control of the Voltage.*—The sensitiveness of the elect-

roscope varies with the difference of potential between the plates. To keep it constant, a variable resistance of 117 ohms R' was introduced between one plate and the connection to the higher potential. By moving the rider whenever necessary the voltage was kept at a constant value as indicated by the Voltmeter V.

(xi) *The Standard.*—It was not possible to obtain a radium standard at Lahore, or even pitchblende to make one. A standard was, therefore, prepared from one of the minerals. By chemical analysis the quantity of uranium for gramme of Uranium Ochre was determined, and from this the amount of the radium in equilibrium with that amount of uranium was calculated by multiplying it with 3.15×10^{-7} .

The estimation of uranium in Uranium Ochre was carried out by precipitating uranium as ammonium uranyl phosphate $UO_2 \cdot NH_4 PO_4$ and converting it by ignition to uranyl pyrophosphate². The weight of uranium found was 0.0680 grm. per grm. of the mineral.

(xii) *Calibration of the Scale.*—For quantitative measurements it is necessary that the scale of the electroscope be calibrated. For this purpose the sensitivity was measured when the leaf was at different parts of the scale. But even after doing this the readings were taken on the same part of the scale.

The following table shows the number of divisions moved for .1 volt potential difference, the leaf being at different parts of the scale:—

| From | To | Difference | From | To | Difference |
|------|------|------------|------|------|------------|
| 50.5 | 47 | 3.5 | 30 | 26 | 4 |
| 46 | 42.5 | 3.5 | 28 | 24 | 4 |
| 41 | 39.5 | 3.5 | 27 | 23 | 4 |
| 37.5 | 33.5 | 4 | 20 | 16 | 4 |
| 36 | 32 | 4 | 18 | 13.5 | 4.5 |
| 34.5 | 30.5 | 4 | 14 | 9 | 5 |
| 32 | 28 | 4 | | | |

This shows that the readings are constant between 40 and 20 on the scale; hence all readings were taken between these two divisions.

(xiii) *The Position of the Leaf.*—The position of the leaf has a great effect on the sensitiveness. It was found that the sensitiveness increased with lowering the leaf till a point reached after which it became unstable. The position of the greatest sensitiveness where the leaf was quite stable was chosen for the experiment.

(xiv) *The Constant of the Electroscope.*—Having determined the quantity of uranium per gram of Uranium Ochre.

¹ Pirret and Soddy Phil. Mag. VI 1911-21, p. 652.

² Fresenius Quantitative Analysis, Vol. II, p. 310.

the radium constant is found by multiplying this value by 3.15×10^{-7} . Now we also know from experiment the number of divisions the gold leaf moves per hour when a solution of Uranium Ochre containing one gramme of the mineral is used. From this we can calculate the quantity of radium which corresponds to the movement of the leaf through one scale division per hour. In other experiments the rate of motion of the leaf was only to be noted to get the radium content of the mineral under examination.

By analysis it was found that one gram of Uranium Ochre contains

0.0680 grm. uranium

or, $0.0680 \times 3.15 \times 10^{-7} = 0.2143 \times 10^{-7}$ grm. radium.

\therefore 1.2 grm. of the mineral contains $1.2 \times 0.2143 \times 10^{-7}$

$= 0.2572 \times 10^{-7}$ grm. radium.

The number of divisions travelled by the leaf per hour for this amount of the mineral (as indicated later) was 13108.

\therefore One division corresponds to $\frac{0.2572}{13108} \times 10^{-7}$ grm. radium.

$= 0.0000196 \times 10^{-7}$ grm. radium

$= 1.96 \times 10^{-12}$ grm. radium.

For other minerals now, the number of divisions moved by the leaf, per hour, is simply to be multiplied by this constant to give the radium content.

EXAMINATION OF THE MINERALS.

The following Radioactive minerals were very kindly sent by the Superintendent, Geological Survey Department of India, Calcutta:—

| No. | Name. | Locality. |
|-----|---|--------------------------------------|
| 1. | Apatite-magnetite with yellow incrustations. | Dhalbhumgarh, Singhbhum District. |
| 2. | Apatite-magnetite with green incrustations. | Ditto. |
| 3. | Apatite-magnetite with purple incrustations. | Ditto. |
| 4. | Uranium Ochre .. | Abraki Pahar, Singar, Gaya District. |
| 5. | Columbite with Uranium Ochre. | Singar, Gaya District. |
| 6. | Samarskite | Sankara Micaminu, Nellore District. |
| 7. | Triplite with small patches of Uranium Ochre. | Singar, Gaya District. |
| 8. | Cordierite sent by the State Geologist, Travancore, was also examined. Some aluminium minerals from Jammu and | |

Kashmire State kindly sent by Professor Wadia were examined for their radioactivity.

1. *Apatite-Magnetite with Yellow Incrustations*.—The great part of the activity is probably due to the incrustations.

Ten grams of the finely powdered mineral and sieved through 100 mesh-sieve were fused and dissolved as described before. The acid and alkaline solutions were left well-stoppered for about a month. After this time they were taken in turn to the testing apparatus and boiled for over 15 minutes. The voltage difference was kept at 235 volts, as, of course, in all the observations.

Alkaline Solution :—

Natural leak = 13 divisions, per hour.

Leak when the gases were in the testing vessel.

| No. | Divisions. | Time. |
|-----|--------------|---------------|
| 1. | 19 Divisions | in 8 minutes. |
| 2. | 9.5 " | " 4 " |
| 3. | 10 " | " 4 " |

∴ Average = 2.3 divisions per minute, i.e., $2.3 \times 60 = 138$ divisions, per hour; therefore, real leak for alkaline solution = $138 - 13 = 125$ divisions, per hour.

Acid Solution :—

Natural leak = 13 divisions, per hour.

| No. | Divisions. | Time. |
|-----|------------|----------------|
| 1. | 20 | .. 11 seconds. |
| 2. | 20 | .. 11 " |
| 3. | 20 | .. 11.5 " |
| 4. | 10 | .. 5.3 " |
| 5. | 10 | .. 5.4 " |
| 6. | 10 | .. 5.4 " |

Average = 20 divisions in 10.8 seconds = 110.8 divisions per minute = 6648 divisions, per hour. ∴ Real leak = $6,648 - 13 = 6,635$ divisions, per hour.

Total leak of Alkaline and acid solutions = 6,635 plus 125 = 6,760 divisions, per hour.

∴ Radium content = $6,760 \times 1.96 \times 10^{-12} = 13,249 \times 10^{-12}$ for ten grms. of the mineral, i.e., $1,324.9 \times 10^{-12}$, per gramme. In these and all the following readings due attention was paid to taking the readings on the same part of the scale. The stop-watch was wound before taking every reading lest it should stop while taking the reading.

2. *Apatite-Magnetite with Green Incrustations*.—This mineral, like the first one, was quite soft. The green incrustations were not distributed all over as in the first one. The following are the readings when the equilibrium amount of the emanation had developed.

Alkaline Solution :—

Natural leak = 15 divisions, per hour.

| No. | Divisions. | Time. | Average divisions. |
|-----|------------|------------|--------------------------|
| 1. | 10 | 13 minutes | per hour, equal to 46.2. |
| 2. | 35 | 45 " | |

Real leak = $46.2 - 15 = 31.2$.

Acid Solution :—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|------------|------------------------------|----------------------|
| 1. | 10 | 5 seconds. | 20 divisions in 9.8 seconds. | 7.347. |
| 2. | 20 | 10.2 " | | |
| 3. | 20 | 10 " | | |
| 4. | 20 | 10 " | | |
| 5. | 20 | 9.8 " | | |
| 6. | 20 | 9.8 " | | |
| 7. | 20 | 9.7 " | | |
| 8. | 20 | 9.8 " | | |

Real leak = $7.347 - 20 = 7.327$.

Total leak is equal to 7,327, plus 31 = 7,358 divisions, per hour.

∴ Radium content is equal to

$7,358 \times 1.96 \times 10^{-12} = 14,421.68 \times 10^{-12}$ gm. in ten grms., i.e., $1,442.2 \times 10^{-12}$ gm., per gramme.

3. *Apatite-Magnetite with Pink incrustations*.—This piece of rock sent differed from the former two in being harder. There was only a pinkish tinge on some portions and there were no incrustations practically speaking.

Alkaline Solution :—The natural leak was more, probably because the solution, tested just before it, was too active. It was 35 divisions, per hour.

| No. | Divisions. | Time. | Average. |
|-----|------------|-------------|-------------------------|
| 1. | 12 | 15 minutes. | 50 divisions, per hour. |
| 2. | 12 | 15 " | |
| 3. | 13 | 15 " | |
| 4. | 13 | 15 " | |

Real leak = $50 - 35 = 15$ divisions, per hour.

Acid Solution :—

| No. | Divisions. | Time | Average. | Per hour. |
|-----|------------|----------|--------------------------|----------------------------|
| 1. | 10 | 55 secs. | 10 divisions in 52 secs. | 692.3 divisions, per hour. |
| 2. | 10 | 55 " | | |
| 3. | 10 | 52 " | | |
| 4. | 10 | 52 " | | |
| 5. | 10 | 52 " | | |

Real leak = $692.3 - 35 = 657.3$; Total leak due to both the solutions = 657.3 , plus 15 = 672.3 , therefore radium content

is equal to $672.3 \times 1.96 \times 10^{-12}$ grm. = $1,317.7 \times 10^{-12}$ grm. in 10 grms., i.e., 131.77×10^{-12} grm., per gramme.

4. *Uranium Ochre.*—This was a very soft mineral and on account of its high radium content this was used as the standard, the uranium being estimated by quantitative analysis. In view of the small quantity of the mineral at disposal only 1.2 grm. of it was used for the determination of its radium content.

Alkaline Solution:—The alkaline solution showed little activity. The natural leak was 20 divisions, per hour.

| No. | Divisions. | Time. | Average. |
|-----|------------|---------------|---------------------------|
| 1. | 9 | .. 11 minutes | } 57 divisions, per hour. |
| 2. | 22 | .. 25 .. | |
| 3. | 20 | .. 31 .. | |

Real leak = $57 - 20 = 37$ divisions, per hour.

Acid Solution:—

| No. | Divisions. | Time | Average. | Divisions, per hour. |
|-----|------------|--------------|-----------------------------|----------------------|
| 1. | 20 | .. 5.2 secs. | } 20 divisions in 5.5 secs. | 13,091. |
| 2. | 20 | .. 5.5 .. | | |
| 3. | 20 | .. 5.5 .. | | |
| 4. | 20 | .. 5.5 .. | | |

Real leak = $13,091 - 20$ is equal to 13,071 divisions per hour. Total leak = $13,071$, plus $37 = 13,108$ divisions, per hour, therefore Radium content = $13,108 \times 1.86 \times 10^{-12} = 25,720.8 \times 10^{-12}$ in 1.2 grms., i.e., $21,434 \times 10^{-12}$ grm., per gramme.

5. *Columbite with patches of Uranium Ochre.*—Ten grms. of the well-ground mineral were treated as already described. The alkaline and acid solutions were examined after over 3 weeks.

Alkaline Solution:—The natural leak observed was 15 divisions, per hour. The leak due to the alkaline solution as observed in two readings was 10 divisions in $3\frac{1}{2}$ minutes = 171 divisions, per hour; therefore, real leak = $171 - 15 = 156$ divisions, per hour.

Acid Solution:—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|---------------|----------------------------|----------------------|
| 1. | 20 | .. 20.2 secs. | } 20 divisions in 21 secs. | 3,428. |
| 2. | 20 | .. 21 .. | | |
| 3. | 20 | .. 21 .. | | |
| 4. | 20 | .. 20.6 .. | | |
| 5. | 20 | .. 20.9 .. | | |
| 6. | 20 | .. 21 .. | | |
| 7. | 20 | .. 21 .. | | |
| 8. | 20 | .. 21 .. | | |

Real leak = $3,428 - 15 = 3,413$ divisions, per hour. Therefore, Total leak = $3,413$ plus $156 = 3,569$ divisions per hour.

Hence Radium content = $3,569 \times 1.96 \times 10^{-12}$ in 10 grms. = $6,995 \times 10^{-12}$ gm. in 10 grms., i.e., 699.5×10^{-12} gm., per gramme.

6. *Samarskite Rock*.—The method of treatment of this mineral from Nellore District was the same. Ten grms. of the mineral were used.

Alkaline Solution: This solution was examined after the acid solution of Samarskite which was strongly radioactive, so that the natural leak was quite too much being 7 divisions in 10 minutes = 42 divisions, per hour.

Readings with Alkaline solution:—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|-----------|----------------------------|----------------------|
| 1. | 12 .. | 55.5 secs | } 10 divisions in 51 secs. | 706. |
| 2. | 12 .. | 56 .. | | |
| 3. | 10 .. | 51 .. | | |
| 4. | 10 .. | 51.5 .. | | |
| 5. | 10 .. | 52 .. | | |
| 6. | 10 .. | 51 .. | | |

Real leak = $706 - 42 = 664$.

Acid Solution:—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|-----------|-----------------------------|----------------------|
| 1. | 20 .. | 1.3 secs. | } 20 divisions in 1.2 secs. | 60,000. |
| 2. | 20 .. | 1.2 .. | | |
| 3. | 20 .. | 1.2 .. | | |
| 4. | 20 .. | 1.1 .. | | |
| 5. | 20 .. | 1.2 .. | | |
| 6. | 20 .. | 1.2 .. | | |
| 7. | 20 .. | 1.2 .. | | |
| 8. | 20 .. | 1.2 .. | | |

Real leak for Acid solution = $60,000 - 15 = 59,985$; therefore, total leak due to both the solutions = $59,985$, plus 664 , i.e., $60,649$. Radium content = $60,649 \times 1.96 \times 10^{-12} = 118,872 \times 10^{-12}$ gm., per 10 grms., = $11,887.2 \times 10^{-12}$ gm., per gramme.

7. *Cordierite Rock*.—This piece of rock was obtained from Travancore State. It was quite hard. Ten grms. of the well-powdered rock were treated as the previous ones. The Alkaline and Acid solutions were left for about a month after which time they were examined.

Alkaline Solution:—The natural leak observed was 12 divisions in $\frac{1}{2}$ hour, i.e., 24 divisions, per hour.

Readings with Alkaline Solution:—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|--------------|------------------------------|----------------------|
| 1. | 12 .. | 5.2 minutes. | } 11 divisions in 5 minutes. | 132. |
| 2. | 12 .. | 5.3 .. | | |
| 3. | 11 .. | 5 .. | | |
| 4. | 11 .. | 5 .. | | |

Real leak = $132 - 24 = 108$ divisions, per hour.

Acid Solution :—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|-----------------|--|----------------------|
| 1. | 10 | 2 min. 12 secs. | $\left. \begin{array}{l} 10 \text{ divisions} \\ \text{in 2 mins.} \\ 11 \text{ secs.} \end{array} \right\}$ | 275. |
| 2. | 10 | 2 „ 10.5 „ | | |
| 3. | 10 | 2 „ 12 „ | | |
| 4. | 10 | 2 „ 11 „ | | |
| 5. | 10 | 2 „ 11 „ | | |

Real leak = $275 - 24 = 251$; therefore, total leak due to both the solutions = 251 , plus $108 = 359$. Hence Radium content is equal to $359 \times 1.96 \times 10^{-12} = 697.6 \times 10^{-12}$ grm., per 10 grms. i.e., 69.7×10^{-12} grm., per gramme.

8. *Bauxite*.—A sample of bauxite obtained 12 feet from the surface from a place in Jammu State was kindly sent by Professor Wadia. Its examination showed a very small radium content.

Five grms. of the mineral were used. The natural leak was 15 divisions, per hour. The Alkaline solution did not show any activity. There was a slight decrease in leakage. The following results were obtained with the Acid solution :—

| No. | Divisions. | Time. | Average. | Divisions, per hour. |
|-----|------------|------------|---|----------------------|
| 1. | 3 .. | 7 minutes. | $\left. \begin{array}{l} 10 \text{ divisions in} \\ 20 \text{ minutes.} \end{array} \right\}$ | 30 |
| 2. | 5 .. | 10 „ | | |
| 3. | 10 .. | 20 „ | | |

Real leak = $30 - 15 = 15$ divisions; therefore, radium content = $15 \times 1.96 \times 10^{-12} = 29.4 \times 10^{-12}$ for 5 grammes
or $= 5.9 \times 10^{-12}$ grm., per gramme.

9. *Bauxite, 2 feet from Surface*.—This mineral was obtained from Riasi, Jammu State. The leak for 3 grms. of it is given below when the natural leak was 15 divisions, per hour. Two readings were taken.

| No. | Divisions. | Time. | Average per hour. |
|-----|------------|-------------|--|
| 1. | 12 .. | 30 minutes | $\left. \begin{array}{l} 24. \end{array} \right\}$ |
| 2. | 12 .. | 30 minutes. | |

Real leak = $24 - 15 = 9$ divisions, per hour.

∴ Radium content = $9 \times 1.96 \times 10^{-12} = 17.6 \times 10^{-12}$ for 3 grms.
or $= 5.8 \times 10^{-12}$ grm., per gramme.

TABLE SHOWING THE RADIUM CONTENT OF THE MINERALS EXAMINED.

| Number. | Mineral. | Locality. | Radium content in grams., per gramme. |
|---------|--|---------------------|---------------------------------------|
| 1 | Uranium Ochre .. | Gaya District .. | $21,434 \times 10^{-12}$ |
| 2 | Samarskite Rock .. | Nellore District .. | $11,887 \times 10^{-12}$ |
| 3 | Apatite Magnetite with Green incrustations | Singhbhum District | $1,442 \times 10^{-12}$ |
| 4 | Apatite-Magnetite with Yellow incrustations. | Do. .. | $1,324.9 \times 10^{-12}$ |
| 5 | Columbite with patches of Uranium Ochre. | Gaya District .. | 699.5×10^{-12} |
| 6 | Apatite-Magnetite with Pink incrustations. | Singhbhum District | 131.77×10^{-12} |
| 7 | Cordierite Rock .. | Travancore State | 69.7×10^{-12} |
| 8 | Bauxite (12 feet from surface). | Jammu State .. | 5.9×10^{-12} |
| | Bauxite (2 feet from surface). | Do. .. | 5.8×10^{-12} |

The authors desire to take this opportunity of expressing their indebtedness to Prof. J. M. Bhade, for many valuable and helpful suggestions, during this investigation.

Summary.—The radioactivity of some Indian minerals has been examined by the "Solution Method." In place of Wilson's Tilted Electroscopes, Burnstead's Double Electroscopes was used. The city current was employed, but the voltage was controlled by the use of a variable resistance. Uranium Ochre and Samarskite are the most radioactive of the minerals examined. The quantities sent, however, seem to show that these two are only rare in India. Out of the comparatively strongly active minerals, Apatite-Magnetite with Yellow incrustations seems to be the most abundant. Its radium content is $1,324.9 \times 10^{-12}$ gm. per gramme of the mineral. The next mineral in order of importance would be Apatite-Magnetite with Green incrustations, its radium content being 1442×10^{-12} gm., per gramme, but it seems to be much less abundant than the former. The Cordierite Rock from Travancore State has its radium content equal to 69.7×10^{-12} gm., per gramme, and the two samples of Bauxite from Jammu (12 feet from surface and 2 feet from surface) 5.9×10^{-12} and 5.8×10^{-12} gm., per gramme, respectively.

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On the occurrence of *Scylla Serrata* Forskål in the upper Tertiary beds of Hathab, Bhavanagar (Kathiawar).

By HEM CH. DAS-GUPTA, M.A., F.G.S.

[With Plate.]

Introduction.

The common Indian edible crab (*Scylla serrata* Forskål) has, for a long time, been known to occur in a fossilised condition. This fossil was first described in 1767 under the name of *Cancer petrefactus*. Desmarest described the fossil as *Portunus leucodon*.¹ In his monograph dealing with the fossil crabs Reuss refers to this fossil as *Lupea leucodon*,² while, according to A. Milne-Edwards, this fossil is identical with the living *Scylla serrata*.³ In spite of the great antiquity of the find of this fossil, information about the age and the locality of the beds in which the fossil occurs has been extremely vague. Thus we find that Reuss⁴ listed this species with those which are 'Aus unbestimmter Tertiäretage oder quartär.' The Presidency College collection from Hathab in the State of Bhavanagar (Kathiawar) includes remnants of two brachyurous crabs. One of them is extremely interesting as I think that with its help we can fix somewhat definitely the age of the beds in which *Scylla serrata* Forskål occurs as a fossil.

Description of the fossils.

The bigger of the two specimens is known chiefly by its sternum not very completely preserved. Identification of a crab which has no carapace left is an extremely hazardous task, but students of palæontology have sometimes to rest contented with whatever scanty materials they can lay their hands on. Thus we find that Dr. Studer established a new species (*Scylla molassica*) of Miocene age⁵ on the evidence of the sternum, the post-abdomen and parts of the third right maxillipede. The specimens of fossilised *Scylla serrata* have been very elaborately described by Milne-Edwards.⁶ The portions of the sternum and the

¹ Hist. natur. d. crust. fossiles pp. 86-87, 1822.

² Denkschr. d. kais. Akad. Wien. Bd. 17, pp. 58-61, 1859.

³ Hist. d. crust. Podophthal. fossiles. Vol. I, p. 128, 1861-65.

⁴ op. cit. p. 82.

⁵ Abh. d. Schweiz pal. Geselsch. Vol. 25, pp. 5-9, 1898.

⁶ loc. cit. p. 60.

third maxillipede left of the Hathab specimen agree remarkably with this description and I have nothing to add to it. A comparison of this specimen with the living examples of this species shows that there is one important point in which the Hathab specimen differs from them. In the Hathab specimen the propodite of the chelipede has a groove which is shallow, somewhat wide, and gradually tapering. In the living specimens no such groove is found. The following remark of Reuss in course of his description of *Lupea leucodon* is, however, interesting in this connection :—

“Die Scherenfüsse sind verhältnissmässig stark entwickelt. Die ersten zwei Glieder zeigen nichts Besonderes... Die Oberseite ist ganz flach, die Unterseite sehr hoch gewölbt oder vielmehr durch einen hohen gerundeten Kiel in zwei Flächen getheilt.”

The teeth of the Hathab specimen are not so strongly developed as those of the living examples and also of the fossils previously described, but it should be noted that the specimen under discussion is much worn out. I think that we can very safely identify the specimen as *Scylla serrata* Forskål though the carapace is completely wanting.

The second specimen is the portion of the left hand of *Neptunus* sp. There are four longitudinal ridges on the external side, one of which runs along the whole length of the fragment, the second one is found towards the region of the tip, while the third and the fourth terminate rather abruptly. The second ridge is smooth, the third and the fourth ridges are granular, while the first ridge is granular at the lower portion and smooth at the upper portion. This is quite unlike any of the specimens described by Stoliczka¹ and Noetling.²

Age of the beds.

According to Fedden, the Hathab deposit where these crab remains were discovered belongs to the Gaj series.³ The fish teeth obtained from these beds also show a strong Miocene affinity.⁴ From these we may conclude that the bed in which *Scylla serrata* Forskål occurs as a fossil is of Miocene age. For want of accurate information about the locality and the bed of the occurrence of fossilised *Scylla serrata*, Milne-Edwards had to make the following remark⁵ :—

‘Le squelette tégumentaire de la *Scylla serrata* a été peu à peu transformé en calcaire, et c’est plutôt un Crabe pétrifié qu’un Crabe fossile.’ We are, however, now in a position to say

¹ Pal. Ind. Ser. vii and xiv Vol. I, pt. 1, pp. 3-7 (with figs.) 1871.

² Pal. Ind. N.S. Vol. I, pt. 3, p. 371 pl. 24 figs. 8-9, 1901.

³ Mem. Geol. Surv. Ind., Vol. XXI, p. 111, 1884.

⁴ Proc. Ind. Assoc. cult. Sci., Vol. III, pt. vii, pp. 158-160, 1917.

⁵ op. cit. p. 129.

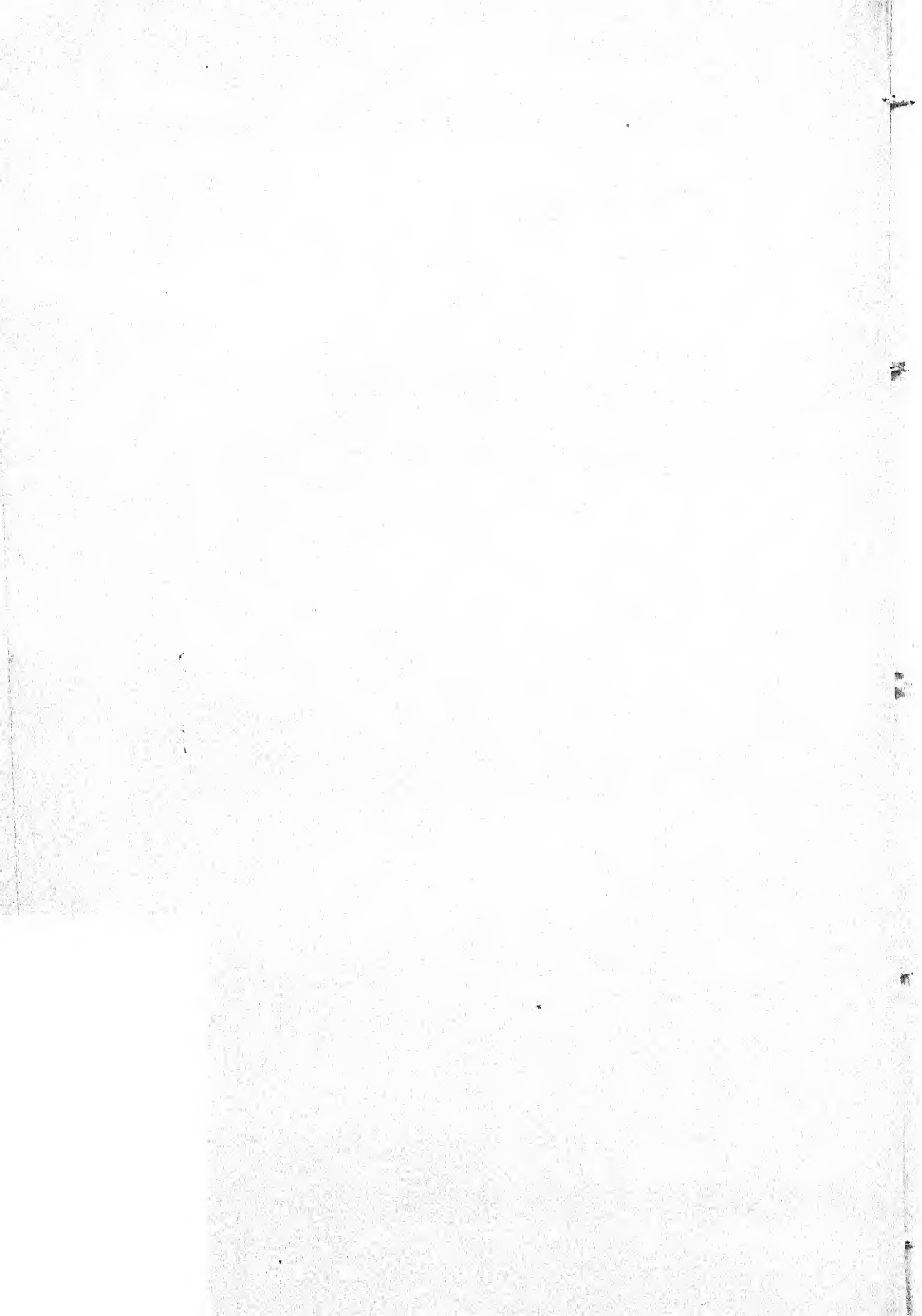
definitely that the transformed specimens are really fossilised and that in Kathiawar the fossil is found in beds which are unquestionably of Miocene age.

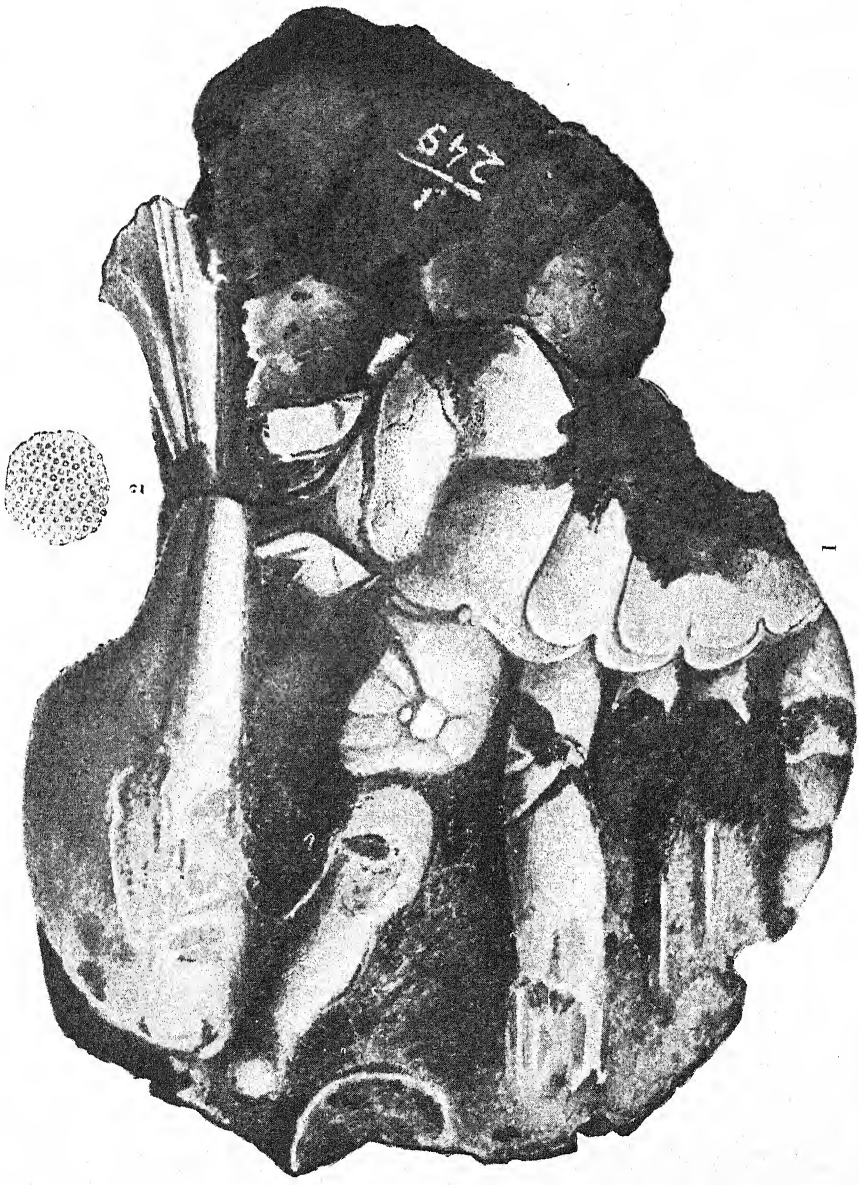
EXPLANATION OF THE PLATE.

Plate No. 10.

Fig. 1. *Scylla serrata* Forskål. (Natural size.)

Fig. 2. A portion of sternite. (Magnified.)





Segylla serrata Forsk.
(Natural size.)

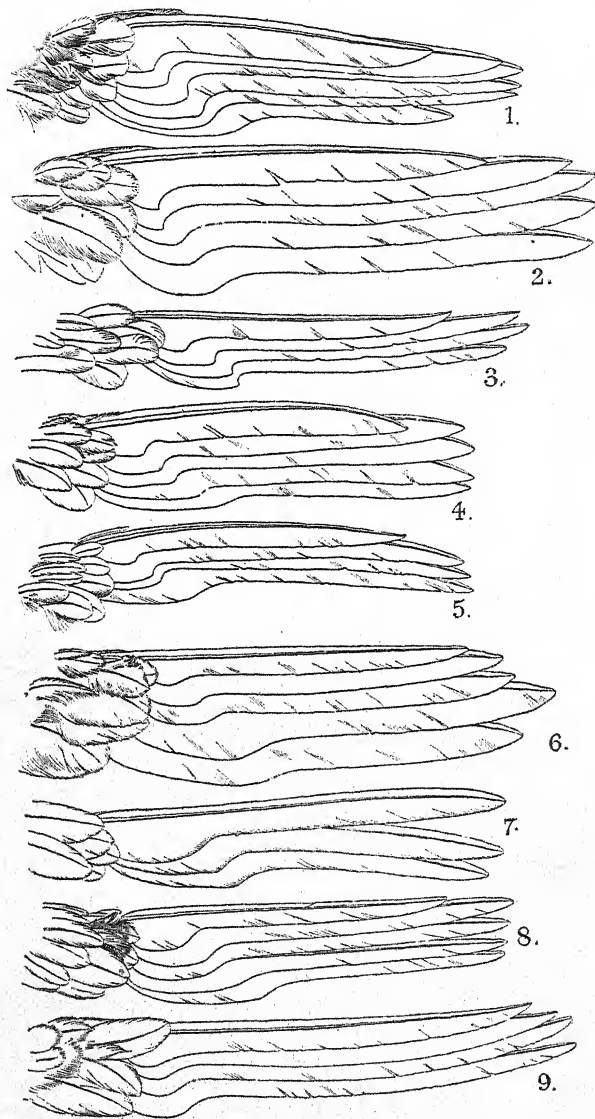
K. D. Chandra, Del.

On the Wings of Gliding Birds.

By GILBERT T. WALKER, KT., C.S.I., Sc.D., Ph.D., F.R.S.

IN a recent paper on 'Meteorology and the non-flapping flight of tropical birds'¹, I drew attention to a remarkable feature in a vulture's wings. The gliding flight of such birds falls naturally into one of two types. When flying regardless of height they usually travel with a high velocity, their wings are slightly flexed and the angle of inclination of the wings to the relative motion through the air is small. On the other hand when trying to gain height or to maintain it under difficulty their relative motion is slower and the angle of incidence much larger: at such times the primary feathers are opened out at the tips, so that they protrude separately for a distance of about seven inches, and Nature appears to attach special importance to this for she employs a special device to increase the separation: she leaves the quills $1\frac{1}{2}$ " to $2\frac{1}{2}$ " wide—according to the species—for a portion of their length, and steps down this width to about $\frac{1}{6}$ of this amount for the remaining terminal portion. The wind pressure bends up the quills, especially those at the leading edge of the wing, so that the successive shafts lie on a forward slope of something like 30° , the leading quills being higher than those behind them; and the individual quills are rotated round their shafts, the posterior margin being raised by the pressure from below. This Handley-Page-like device seems phenomenally successful, for I have watched vultures climbing spirally on a strong upward current, *e.g.*, when a wind is blowing against a cliff, with an angle of incidence which I believe to be as great as 28° : the upward inclination of the plane of the wings as well as the angle of climb appeared to be 20° while the velocity of the birds was about 25 ft. a second. This means a vertical rate of climb of about 8.5 f. s., and estimating the vertical current at 12 f. s. makes the bird's path relative to the air descend at an angle of about 8.5° so that the angle of incidence is $20^\circ + 8.5^\circ$. At first sight it looks as if the bird with its wings plane tilted backwards (*i.e.*, with the leading edge of the wings higher than the following edge) cannot possibly maintain its forward motion against the resistance of the air. But if we consider the forces acting—the 'lift' (at right angles to the relative motion and so inclined forwards 8.5° to the vertical) and the 'drift'—it is clear that the condition for maintenance of the forward motion is that, since $\cot 8.5^\circ$ is 7.7, the lift shall exceed 7.7 times the drift; and

¹ *Proc. Cambridge Phil. Soc.* XXI, p. 371 (1923).



Text-Figure 1.

Under surface of the anterior part of the left wing of—

1. *Vultur monachus* (Linn.), 2. *Gyps himalayensis*, Hume,
3. *Targos calvus* (Scop.), 4 and 5. *Pseudogyps bengalensis* (Gm.),
6. *Gyps indicus indicus* (Scop.), 7. *Gypaetus barbatus grandis* (Stor.), 8. *Gyps ruppellii* (Brehm.), 9. *Sarcorhamphus gryphus* (Linn.).

this condition is easy to satisfy, e.g., with a Handley-Page wing (*Aeronautics*, Vol. XX, p. 129, 1921).

When I drew the attention of the late Dr. Annandale to this feature he at once offered to give me all facilities for investigating its prevalence among birds, and was good enough to have the drawings reproduced as Text-Fig. 1, made from the vultures' skins in the Indian Museum, Calcutta, including as many primaries as showed the step: it will be seen that the S. American condor also possesses it and the east African *Gyps ruppellii*. I could find no allusion to the feature in works of reference until I consulted Mr. A. E. Jones of Simla, whose aid I had never sought in vain in connection with the local birds; from him I learned that in Blandford's Fauna of India some of the harriers are classified by the number of their primaries which possess a 'notch,' but I could find no general statement regarding it. I made use of the opportunity kindly afforded me to examine in Mr. Jones' collection specimens of birds, other than vultures and eagles, which might be expected to have the 'notch,' and made the following notes:—

Falco peregrinator (Shahin falcon). The 1st primary was stepped down to half width for the terminal $1\frac{3}{4}$ " out of a total length of 11".

Falco tinnunculus interstinctus (Indian kestrel). The two first primaries stepped down from $\frac{3}{4}$ " to $\frac{3}{8}$ " for $1\frac{1}{2}$ " out of 8".

Circus pallidus (pale harrier). Three primaries were notched: the second from 1" to slightly over $\frac{1}{2}$ " for $3\frac{1}{2}$ " out of 11".

Circus cyaneus (hen-harrier). Four primaries notched: the 1st from $\frac{7}{8}$ " to $\frac{5}{8}$ " and the 2nd from 1" to $\frac{5}{8}$ ", $3\frac{1}{2}$ " being cut down out of 10".

Asio flammens (short-eared owl). The first primary was stepped down to $\frac{1}{2}$ width for 1 inch.

Glaucidium circuloides (large barred owlet). The 1st primary only was notched.

Glaucidium brodiei (collared pigmy owlet). The 2nd, 3rd, and 4th were notched.

The previous are birds of prey, but I found slight developments of the notch in certain other birds. Thus

Corvus coronoides (Indian jungle crow). Moderate on 1st primary, slight on the others.

Corvus splendens (Indian house crow). Slight.

I noticed the same amounts on birds shot in the plains at Ambala as on birds shot at Simla, although these birds glide at Simla, but not in the plains—owing probably to greater vertical velocities in the hills.

Pyrrhocorax graculus (Alpine chough). Slight.

Nucifraga hemispila (Himalayan nutcracker). A slight vestige.

Tragopan melanocephalus. No trace.

The amount and the angle of the stepping down varies considerably within the same species. Thus in a living specimen of *Vultur monachus* at the Calcutta Zoological Gardens I could not see the notch when it spread its wings close to me, but in the drawing of the museum specimen it is clear enough; and in the *Pseudogyps bengalensis* in which I first saw the notch the step down was cut sharply at right angles to the shaft, but in the museum specimen the angles are rounded off.

A feature worthy of record is that of a sharp notch on the primaries of a *Glaucidium* like that cut from the edge of a railway ticket by a ticket collector. I know nothing of the object, but it may have something to do with silence in flight.

Local Names of some Birds of the Manbhum District.

By SATYA CHURN LAW, M.A., B.L., F.Z.S., M.B.O.U.

Although nearly half the population of the district of Manbhum is made up of the aboriginal races like the Santhals, Kurmis, Bhumij, Bauris, etc., the prevailing vernacular of the district is Bengali with a mixture of variants of Hindi which are sometimes known as Khottā Bānglā. While the Hindi language is used by 12½ per cent. of the population only, the members of the aboriginal tribes are polyglot, speaking Bengali generally or Hindi rarely in addition to their own dialect. According to the Census of 1921, the Bengali language is used in Manbhum by about 67 per cent. of the population. The names of birds that pass current among these Bengali-speaking inhabitants are never expected to be in a dialect exclusively used by any aboriginal race. Nor can they be in Bengali, pure and simple. The names collected by Ball and published in J.A.S.B., Vol. XL (1871), page 103, are in Mundā and Orāon dialects, the use of which is, however, limited to certain local races of Chota Nagpur proper. The names collected by Capt. Beavan from Manbhum and other places and published in the Ibis, N.S., Vol. I, along with his notes on Indian birds, appear mainly to be those which are more in vogue among Hindi-speaking people of Behar.¹ Tickell in his list of birds collected in Borabhum and Dholbhum has incorporated only three or four names, none of which is used by the people of Manbhum.

I have attempted to collect as far as possible within the compass of my short stay in Manbhum, the names of birds which are extensively used by the inhabitants of the district. These are noted below :—

Paḍki, Paḍuk .. = Several species of *Turtur*, e.g.,
T. cambayensis, *T. risorius*, *T. suratensis*, *Oenopopelia tranquebarica*.

The name for these birds current amongst the Kols of Chutea Nagpur is *Parki*.

Horal = *Crocopus phoenicopterus*.
Maino = *Acridotheres tristis*.

¹ The use of such names as Tota, Teea-tota, Phool-toosee tota, Raja-Ranee, Goolab-chasm, Telia Ghughoo, Dhoolee Ghughoo, Bulbul-Postha is mostly found in Behar and United Provinces. Only a very few of the other names given by Beavan are used in Manbhum.

| | | | |
|-----------------------|----|---|---|
| <i>Sālkhā, Sālkhī</i> | .. | = | <i>Sturnopastor contra.</i> |
| <i>Jhuri-maino</i> | .. | = | <i>Sturnia malabarica.</i> |
| <i>Ram-maino</i> | .. | = | The species of <i>Eulabes</i> that are found as cage-birds in the locality. |
| <i>Kāwā</i> | .. | = | <i>Corvus splendens.</i> |

This name is also used by certain Munda people in Chutea Nagpur.

| | | |
|----------------------------|---|------------------------------|
| <i>Bulbulā, Pyank-Karh</i> | = | <i>Molpastes hæmorrhous.</i> |
| <i>Choti</i> .. | = | <i>Passer domesticus.</i> |
| <i>Tāl-chatā</i> .. | = | <i>Ploceus baya.</i> |
| <i>Debchu, Dhebchu</i> .. | = | <i>Dicrurus ater.</i> |

This name is also used by some Munda people. Capt. Beavan mentions "*Dhenkchooar*" and also "*Pabdhooa*" as local names for this bird in Manbhum.

| | | | |
|-------------|----|---|--|
| <i>Rupo</i> | .. | = | denotes several species of <i>Palæornis</i> , e.g., <i>P. torquatus</i> , <i>P. nepalensis</i> , <i>P. cyanocephalus</i> . |
|-------------|----|---|--|

| | | | | |
|-----------------------|----|----|-----|---|
| <i>Māch-rekhā,</i> | } | .. | = { | Several species of King-fishers, e.g., <i>H. smyrnensis</i> , <i>A. ispida</i> . |
| <i>Māch-reki</i> | | | | |
| <i>Kuhulī, Kokila</i> | .. | = | | <i>Eudynamis honorata</i> . |
| <i>Hāku-pāku</i> | .. | = | | <i>Cuculus micropterus</i> . |
| <i>Doob-chūtha</i> | .. | = | | <i>Upupa indica</i> . |

Capt. Beavan mentions "*Doobchirka*" as the name for this bird.

| | | | |
|------------------|----|---|---|
| <i>Ker-kettā</i> | .. | = | Several species of shrikes, principally <i>Lanius lahtora</i> , <i>L. cristatus</i> . |
|------------------|----|---|---|

This name is also very familiar to the aboriginal races, specially the Santals and Mundas. The word "*Khur-kuteea*" mentioned by Capt. Beavan is apparently distorted to suit the tongue of the Hindi-speaking menials on whom the Captain counted for his information.

| | | | |
|-------------------|----|---|-------------------------|
| <i>Pāt-kaleyā</i> | .. | = | <i>Graucalus macii.</i> |
|-------------------|----|---|-------------------------|

The bird is called *Kaleya* by the Santals of Singbhum.

| | | |
|----------------------------|---|----------------------------|
| <i>Pāt-kuhulī, Maukhāl</i> | = | <i>Centropus sinensis.</i> |
|----------------------------|---|----------------------------|

The Hindusthanee name for this bird is "*Māhokāl*."

| | | | |
|---------------|----|---|--|
| <i>Foochi</i> | .. | = | denotes a miscellaneous group of very small birds, specially birds of the genus <i>Phylloscopus</i> with |
|---------------|----|---|--|

many species of which the district abounds.

The terms *Kutis* and *Kusta* are also used to denote these birds of extremely small size.

Lal Foochi, Kusta .. = The Indian Red Munia (*S. amandava*).

Kutis = Small birds like *Uroloncha striata*.

Mejur = *Pavo cristatus*.

Bankukri = *Gallus ferrugineus*.

Titir = *Francolinus pondicerianus*.

Gurur = Quail, e.g., *Perdica asiatica*, *Turnix dussumieri*.

Beavan mentions "*Juhar*" as the local name for *P. asiatica*.

Ghāghar = denotes various kinds of Partridges.

Ti-tang-ti-ung .. = *Sarcogrammus indicus* and the allied species of Lapwing.

Tipa = *Metopidius indicus*.

Dal-kukri = *Gallinula chloropus*.

Dāk = *Amaurornis phenicurus*.

Pāndubki = *Podiceps albipennis*.

Ball mentions *Da-sim* as the Munda name of this bird current in Singbhum.

Band Kāwā = *Phalacrocorax javanicus*.

Garur = *Leptoptilus dubius*.

Apparently this Hindusthani appellation is adopted in Manbhum as in many parts of Bengal.

Manik-jor = *Dissura episcopus*.

Sām-kāhal = *Anastomus oscitans*.

Dhulā-bharri } = *Pyrrhulanda grisea*.

Dhulā-buntri }

Dhulā-bherki }

Khanjānā = *Motacilla alba*.

Pechā = denotes various species of owl, e.g., *Athene brama*, *Scops giu*, etc.

Capt. Beavan writes that some Night-jars, e.g., *Caprimulgus macrurus*, *C. asiaticus*, *C. monticola* are called in Manbhum, "*Khallpecha*," "*Kupchapecha*" and "*Phurruckpecha*." *Khallpecha* is obviously a wrong spelling for '*Kalpecha*,' a term which

is so familiar in Bengal, and in many parts of Orissa, Behar and United Provinces, and is applied to some species of owl, e.g., *Ninox scutulata*, *Glaucidium radiatum*. The nocturnal habits of the Night-jars like those of the owl possibly suggested to the brain of the Hindusthanee menial of Capt. Beavan the invention of these appellations. A slight knowledge of Hindusthanee must have put the Captain on his guard against swallowing his servant's words so readily. The term *Phurruck-pecha* in Hindi means a *Pecha* which is different from the other birds (mentioned above); it could never be the name of any particular bird.

| | | | |
|--------------------|----|---|--|
| <i>Sugani, Gid</i> | .. | = | <i>Pseudogyps bengalensis</i> ; also the other members of the Vulturidæ, particularly <i>Gyps indicus</i> and <i>Otogyps calvus</i> with which the district abounds. |
| <i>Chil</i> .. | .. | = | <i>Milvus Gobinda</i> . |
| <i>Sikra</i> .. | .. | = | <i>Astur badius</i> . |
| <i>Bāshā</i> .. | .. | = | <i>Accipiter nisus</i> . |
| <i>Turmati</i> | .. | = | <i>Esalon chicquera</i> . |

The Kestrel (*Tinnunculus alaudarius*) is also known as *Turmati* or *Tirmati* in Manbhūm.

March, 1925, Calcutta.

Parus major cinereus breeding in the 24-Perganahs.

(With 3 illustrations.)

By SATYA CHURN LAW, M.A., B.L., F.Z.S., M.B.O.U.

So far as I find, hardly any record exists of the nidification of *Parus major cinereus* in the plains of Bengal, and there is distinctly nothing on record from the suburbs of Calcutta in the district of 24-Perganahs. Mr. P. W. Munn contributed to the *Ibis* of 1894 a paper on "The Birds of the Calcutta District," but *Parus m. cinereus* finds not even a mention in his list. All the notes, concerning the nidification of this bird, collected together by Hume in his "Nests and Eggs," come from the hill regions—either from the Nilgheries or from the Sub-Himalayan tracts. Hume makes the following remark on its nesting—"The Indian Grey Tit breeds throughout the more wooded mountains of the Indian Empire wherever these attain elevations of 5,000 feet." Oates in the Fauna of British India, "Birds," simply writes—"breeds from March to June," thus leaving it very vague whether the bird breeds at all in the plains. It is curious that this should be the case in regard to a bird which is found "throughout the whole of India, alike in the hills and plains." The recent publication of Mr. Stuart-Baker's *Avi-Fauna*¹ has cleared this doubt by stating definitely that the bird "breeds throughout its range but at different times in different localities."

It was on the 6th April that I saw a Grey Tit for the first time this year (1924). It was noticed on a *Sajina tree* (*Moringa pterygosperma*) near a pond at Panihati, a village on the Barrackpore Trunk Road about 12 miles from Calcutta. On the 11th April a party of four such birds were observed in an unfrequented garden in the village of Usumpur. They are arboreal no doubt but they seem to have a preference for out-of-the-way, unfrequented orchards. I have not seen them in well-kept gardens with large and carefully laid-out beds. They are not common birds in this district and as they are very shy and secretive one seldom comes across them.

On the 9th of May, a report of its nest reached me from Panihati. I found this to be an unfinished one composed of a few hair and fibres in the hole of a wall of a building in ruins. This nest was soon deserted for some reason or other. A month later, on the 9th June, news was brought to me of another

¹ The work referred to is the Fauna of British India. Birds, Vol. I (2nd Edition). 1922. R.B.S.S.

nest from the same locality. This was placed also in a similar hole in a dilapidated house. From the entrance the hole went down for a few inches and extended to the right, forming a chamber. This chamber was thickly piled with moss and on this large padding a nest was built of hair intermixed with fibres. In it I found two fledgelings which, with the nest, I brought home and placed both nest and young within a cage. Before removing them, however, in order to photograph them, I cut open a section along the wall, as one of the accompanying photos will show. On the 29th June I found another nest in a hole of a banyan tree containing three fully feathered nestlings. The entrance to the hole was an elongated fissure in the trunk.

The pattern of adult coloration is well-preserved in the young birds except that the white of the cheeks and ear-coverts was continued down the sides of the neck and connected with the same colour of the sides of the breast and abdomen. In the case of the young birds brought home on the 9th June, this portion (i.e. the white of the cheeks and ear-coverts) is being isolated now (18th June) by a faint black line which will no doubt eventually broaden into a band on either side the neck connecting the nape with the breast. The tips of the tail-feathers are not yet white. The feathers immediately above the knee are black. The black band of the adult down the middle of the abdomen exists in a straggling, undeveloped line. All the white portions as well as the back, scapulars, rump and upper tail-coverts, are splashed with yellow. Mr. Stuart-Baker says that in the young there is "generally a good deal of green on the upper parts." I do not, however, observe this to be the case, the colour is yellow and not green. The rump and upper tail-coverts are ashy blue instead of deep ashy blue of the adult. The bill is completely black, except a very narrow line of yellowish white along the commissure. The legs and feet are plumbeous with a strong blue tinge.

The young birds, although capable of flight, showed a remarkable disposition for hiding by burying themselves within the moss-padding of their nest. When approached, instead of indulging in nervous flight around the cage, the nestlings crawled or rather shovelled backwards and got buried in the moss of the nest. This habit of trying to back out of reach lasted for more than a week.

Parus major cinereus is no doubt a resident bird in the district of 24-Perganahs but it seems to move about a good deal according to seasons in suitable localities. For this reason, in certain areas, e.g., Ballygunge, Baraset, Barrackpore, etc., which have been under my observation, this bird occurs in more numbers in summer than in winter.

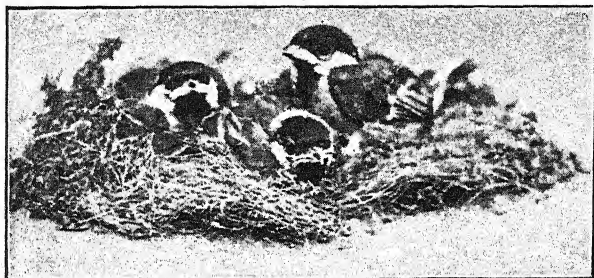


Fig. 1.

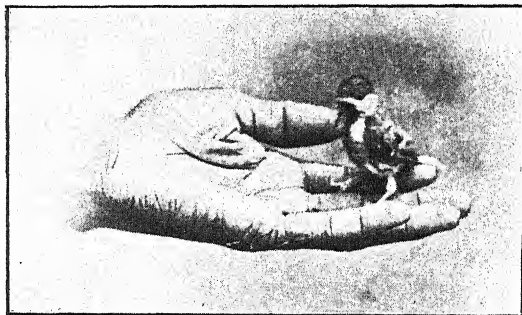


Fig. 2.

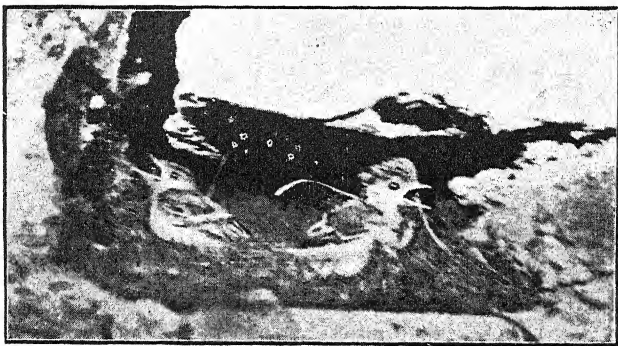


Fig. 3.

DESCRIPTION. *Parus major cinereus*.

Fig. 1.—The 3 fledglings taken out from the nest found on the 29th June. Photographed along with the nest-materials which consisted chiefly of hairs and moss.

Fig. 2.—Showing the pattern of coloration in a fledgling found in the above nest.

Fig. 3.—Showing the nest and two nestlings as observed on the 9th June in a hole on the wall of a dilapidated house at Panihati. A section along the wall is cut open to show the site.

Kālidāsa and the Migration of Birds. I.

By SATYA CHURN LAW, M.A., B.L., F.Z.S., M.B.O.U.

In considering Kālidāsa's knowledge of bird-life our attention is first of all drawn to migration as depicted in his works, because, apart from the intrinsic importance of the subject as a chapter of Ornithology, his delineation of the migratory birds in its vividness of detail stands out in bold relief against the vast background of nature and challenges scientific scrutiny. Scattered about in his works are words, phrases and passages which unmistakably refer to this peculiar feature of bird-life. True, the poet's vocabulary does not give us any Sanskrit equivalent for the word "migration." But there are many expressions relating to birds which can be explained only with reference to the migratory phase of their life.

In the *Meghaduta*, for example, we find that the Yaksha, when entrusting the cloud with his message and exhorting it to carry his tidings to his wife in the Mountain-city of Alakā, assures his messenger that its journey will not be lonely :—

तच्छ्रुत्वा ते अवशसुभगं गर्जितं मानसोत्थाः

आकैलासादिसक्तिसलयच्छेदपाथेयवन्तः

संपत्यन्ते नभसि भवतो राजहंसाः सहायाः ॥ ११ ॥

"Hearing thy ear-pleasing thunder, the Rāj-hansas, yearning for the Mānasa, will ration themselves with tender lotus-stems for the journey, and accompany thee through the air upto Kailāsh."

This is no ordinary flight the poet is referring to. From the land of the Yaksha's internment the Kailāsh is many hundreds of miles away. Such a long journey is no part of the daily routine of the bird's life. In reaching Kailāsh the Himalayan Mountain has to be crossed, a task undertaken only by migratory birds on their way out of India.

Besides, such journeys are undertaken by birds in particular seasons and here we observe that the appearance of clouds, i.e., the beginning of the rains, is associated with the long flight of the Rāj-hansas. It is noticeable that wherever the poet mentions these Rāj-hansas going to their distant destination, the Mānasa, he associates the rainy season with the journey. In fact, in the following quotation from the drama *Vikramorvasi*, he says that the Rāj-hansas start for the Mānasa as soon as clouds appear in the sky. In this scene

the king Vikrama, having lost Urvashi, the heroine of the piece, is almost raving. He is wandering about asking every object, animate or inanimate, for news about his beloved. He sees a flock of Rāj-hansas and says—

(सकण्ठम्) हा धिक् कष्टम् ।

मेघश्यामादिशो दृष्ट्वा मानसोत्सुकचेतसा ।

कूजितं राजहंसेन नेदं नूपुरप्रिञ्जितम् ॥

भवतु । यावदेते मानसोत्सुकाः पतत्रिणः सरसोऽस्मान्नोत्पतन्ति
तावदेतेभ्यः प्रियाप्रवृत्तिरवगमयितव्या । (वलन्तिकयोपसृत्य) अहो
जलविहङ्गमराज,

पञ्चाक्षरः प्रतिगमिष्यसि मानसं त्वं

पाशेयमुत्सृजबिसं ग्रहणाय भूयः ।

मां तावदुद्धरशुचोदयिताप्रवृत्त्या

स्वार्थात्सतां गुरुतरा प्रणयिष्येयैव ॥

(तिर्यगवलोक्य)

अये ! यथाउन्मुखमालोकयति, तथाव्यक्तं प्रवासोत्सुकमनसा मया
न दृष्टेयाह ?

“ (piteously) Woe is me ! how painful !

The sight of the clouds, darkening the landscape has made the Rāj-hansas desirous of going to the Mānasa and it is they that are cackling. It is not the tinkling of foot-ornaments.

(He rises.)

Let it be so. These Rāj-hansas are flying away from this lake being eager for the Mānasa. I shall gather tidings about my beloved from them.

(Kneels down.)

O, King of aquatic birds ! tarry awhile and start for the Mānasa afterwards. Leave the lotus-stems, the ration for your journey. You may take them up again. Relieve me from this pain of separation from my beloved. Wise people consider helping lovers as being more important than self-interest.

(Looking side-ways.)

Ah me ! From the eager way the birds are looking at me it seems they are saying, “We are anxious to go to foreign lands. We have not seen.”

Similarly, in the *Kumārasambhavam*, there is a battle-scene between the *devas* and the *asuras*. On the demon-chief discharging his fire-arm, the whole atmosphere was covered with thick, black, cloudy smoke. The Rāj-hansas in the neighbourhood mistook the smoke for actual clouds, and eagerly prepared to start for the lake Mānasarowara.

धूमैर्विलोक्यमुदिताः खलु राजहंसा

गन्तुं सरः सपदि मानसमौषुखैः ॥ सर्ग १७, श्लोकः ३६

“Seeing the smoke, the overjoyed Rāj-hansas prepared to start for the Mānasa.”

It is therefore clear that the poet appears to state it as an actual fact of nature that the departure of the Rāj-hansas for the Mānasa synchronises with the appearance of clouds in the sky denoting the approach of the rainy season. In the next paper I shall try to find out which of the birds¹ known to us at the present day, the Rāj-hansa may be identified with and ascertain whether their migration begins in the rainy season. It is sufficient for the present to point out that in the above passages the poet is referring to a migratory bird. In the passage quoted above from the drama, *Vikramorvasi*, there is a word which strengthens such a conclusion. The birds are described as ‘prabāsotsukamanasā’—anxious to go to a foreign land. Certainly, it is only migratory birds that leave a country and go abroad. In reaching Mānasarowara, one has to cross the insurmountable barrier of the Himalayan range. It is only when on their migratory move that birds undertake to cross these mountains.

There is one phrase in the *Meghaduta* which cannot but refer to migratory birds. The poet describes the city of Dasārṇa as “katipayadinasthāyi haṁsā Dasārṇā”, i.e., Dasārṇa where Haṁsas tarry only for a short while. These *katipayadinasthāyi* haṁsas are migratory. We know that birds, when on migration, often rest on their route for a day or two or even a week. For example *Carpodacus erythrinus* when on its upward migration from India, at the end of winter, generally tarry in the districts below the Himalayas or in the lower ranges if their food be plentiful. “The Rose-Finch,” says Scully in the *Stray Feathers* (Vol. VIII, p. 335), “merely passes through the valley (Nepal) on its migrations and does not remain for more than a few days at a time.” It was those Haṁsas which on their migrations “do not remain for more

¹ Some birds of the Anatidæ Family are popularly known as Rāj-hans, e.g., *Anser indicus*, *Anser ferus*. But I have come to the conclusion that the Flamingo (*Phoenicopterus antiquorum*) which is also popularly called Rāj-hans is really the Rāj-hansa of the poet. The considerations that have led me to this identification are discussed at length in the following paper.

than a few days," that are meant by the expression "Katipaya-dinasthāyi haṇṣā."

The poet mentions the Lake Mānasa as the destination of the Rāj-haṇṣas. The destination itself shows that they are migratory birds. The Mānasa or the Lake Mānasarowara is the destination of many aquatic birds that migrate out of India. It is the favourite breeding haunt of many anserine birds. Mr. W. Moorecroft has left the following record of his journey to the Lake—"The water's edge was bordered by a line of wrack grass, mixed with the quills and feathers of the large grey wild goose which, in large flocks of old ones with young brood, hastened into the lake at my approach..... These birds from the numbers I saw and the quantity of their dung appear to frequent this lake in vast bodies, breed in the surrounding rocks and find an agreeable and safe asylum when the swell of the rivers of Hindustan in the rains and the inundation of the plains conceal their usual food." [A journey to the Lake Manasarowara in Undes, Asiatic Researches, Vol. XII, p. 468 (1816).]

It is noticeable that the two names Mānasa and Rāj haṇṣa occur together almost everywhere in Sanskrit literature. The Rāj-haṇṣas are said to be *Mānasacārin* or *Mānasaukasah*—frequenting or living in Mānasa. These adjectives seem to have been used more conventionally than with any definite significance. But in Kālidasa's works the coupling of the two names is not conventional. He definitely suggests that the Mānasa is very intimately connected with the life of the Rāj-haṇṣa. He is not satisfied with only telling us that the Rāj-haṇṣas go to the Mānasa: he gives us the season when they do; and he coins one or two such adjective-compounds with the name Mānasa which are pregnant with meaning, and which show that the poet was more intimately acquainted with the migratory habit of the bird than one would think. I am referring to the words—मानसोक्ताः, मानसोत्सुकचेतसा and प्रवासोत्सुकमनसा.

An idea of hankering, anxiety and restlessness is contained in the above expressions. They are suggestive of a very peculiar phase of the migratory chapter of the bird's life.

Now, migration is a racial custom which is brought into operation by an instinctive impulse associated, among other conditions, with external periodicities in the environment. There are both internal and external stimuli which pull the trigger of the impulse that leads to migration. The external or environmental stimuli are atmospheric changes notably of temperature and pressure. Birds are peculiarly sensitive of and responsive to atmospheric changes. They become conscious of the change of seasons with meteorological exactitude. The result of such premonitions is that at the approach of the migratory season birds become restive and an anxious restlessness comes upon

them. Even cage-birds have been known to exhibit excessive restlessness at the appropriate time. The poet took note of this temperamental change in the birds and expressed it poetically by describing this restlessness and hankering as a yearning, an anxiety for the novel environments of the distant Mānasa.

It is worthy of note that the expressions conveying an idea of anxiety, eagerness or restlessness are used only when the poet is describing the Rāj-hansas in connection with the rainy season, which is the time when they depart from India. In other seasons, specially when they have returned again to India after their northerly sojourn, this restlessness and anxiety do not exist; and therefore those particular epithets—Manasotkā, etc.,—are not used in connection with the birds. In such places the word is either *priyamānasa* (Mānasa-loving) or the word Mānasa is simply used adjectivally, as in *Mānasarāja-hansi* (Rājahansis that frequent the Mānasa) in *Raghuvansam*. In the *Ritusanhāra* the name of the Rāj-hansa occurs in the canto on Śarat or Autumn. In this season these birds have come back to India. They mean to stay here the whole of winter and so, for the present, they are no longer yearning for the Mānasa. Neither does the poet describe them as such, e.g.,

स्तुकुमुदचितानां राजहंसस्थितानां

मरकतमणिभासा वारिणा भूषितानाम् ।

“The lakes, the waters of which glisten like emeralds and where nymphias bloom, look graceful by the presence of the Rāj-hansas.”

We may, therefore, infer that the epithets *Mānasotka* or *Mānasotsukacetasa* are not mere conventional expressions but are significant of that restlessness which comes upon birds on the eve of their migratory flight.

There is one stanza in the *Meghaduta* which proves that Kālidāsa observed the migratory habits of the Hansas very closely. It is true that the migratory instinct is ingrained in the very constitution of birds and at the proper season both internal and external impulses compel them to migrate. But in spite of this “there is a strong tendency,” says Mr. Finn, “for migrants to settle down and form non-migratory local races.” The same writer says that “want of food is obviously the chief reason why birds of high elevations or high latitudes have to leave their haunts.” If, therefore, any place or locality offer easily-procurable food in plenty with other favourable conditions the birds may not be willing to undergo the strain of long journeys. This fact of nature also came under Kālidāsa’s notice, for he writes—

वापीचास्मिन्मरकतशिलावद्भक्षोपानमार्गं

हैमैश्चक्ष्न्ना विकचकमलैः खिग्धवैदूर्यनालैः ।

यस्यास्त्यो हतवसतयो मानसं संनिद्धं

नाध्यास्यन्ति व्यपगतशुचस्त्वामपि प्रेक्ष्य हंसाः ॥

“There is a tank, with steps paved with emerald and containing golden lotuses floating on coral-stalks, in the waters of which the Hansas having made their homes, make no attempt to start for the Mānasa, though they are glad to see you.”

From this stanza we gather that certain Hansas have chosen the water-course in the city of Alakā as their haunt. The mention of lotuses shows that the poet is hinting at the existence of the food of these birds. Though the sight of the clouds gladden them they are loath to start for the Mānasa, because their favourite food is abundant. But, it may be asked, why are the birds joyful at the sight of the clouds? The Rainy Season is their migratory season; it is their breeding period as well. In the breeding season birds become livelier than in other seasons. It is this liveliness which the poet has noticed.

“Migratory birds,” says Dewar, “that pass the winter in India have to fly over the Himalaya mountains to their breeding grounds in Tibet, China and Russia. They do not fly over the highest mountains, but cross them by what are known as passes in the mountains, that is to say, spaces between the higher hills.” Now this fact also seems to have been within the ken of Kālidāsa. We get the following stanza in *Meghaduta* :—

प्रालेयद्रूपतटमतिक्रम्य तांस्तान्निशेषान्

हंसद्वारं भृगुपतियशोवर्त्त यत्कौञ्चरन्ध्रम् ।

“Crossing the lower regions of the Mountain you will arrive at the Kraunca-randhra which is the fame-path of Bhṛigupati and the gate of the Hansas.” Kālidāsa is evidently aware of the fact that hansas pass through a defile such as this and so he describes the Kraunca-randhra as the ‘Gate of the Geese,’ the gate through which they pass into and out of India. In the neighbourhood of the Lake Manasarovara there are a few passes and to one of them the poet is surely referring. Mr. N. L. Dey in his “Ancient and Mediæval Geography of India” describes the Kraunca-Randhra as “the Niti pass in the district of Kumaon which affords a passage to Tibet from India.”

Let us now turn to the *Ritusanhara*; it is a descriptive lyric, a canto being devoted to each of the six seasons. Birds naturally come in for a great deal of attention. In the canto on Śarat or Autumn we find some anserine birds specifically mentioned. These birds are all migratory; they all sojourn in India throughout the winter, most of them leaving for the

far North towards the end of February. Only one or two species remain till the beginning of the rainy season. The poet seems to have been aware of this fact. He does not name them in his cantoes on Summer or the rains. But as soon as autumn comes he paints his canvas thick with these birds. Indeed, in a way, he tells us in the following stanza that anserine birds arrive in autumn :—

काशांशुका विकचपद्मनोज्वला,

सोन्मादहंसखनूपुरनादरम्या ।

आपक्वशालिरुचिरा तनुगात्रयष्टिः,

प्राप्ता शरन्नवधूरिव रूपरम्या ॥

“ Behold the autumn has arrived like a lovely newly-wed bride; the full-blown lotuses represent her beautiful face, the Kāśas are her apparel, the half-ripe rice-plants represent her slim and lithe limbs and the cackling of the geese are the tinkling of her anklets.”

It is with the advent of autumn that lotuses begin to bloom, Kāśa flowers deck our greens, rice begins to ripen and the cackling of the arriving geese is heard. Just as elsewhere the poet has described the departure of the Rāj-hansas during the rains, we find the arrival of the geese in autumn hinted at in the above lines. Migration and all that it means to a modern scientist might have been a sealed book to Kālidāsa. But the phenomenon itself did not escape his observant eye. He had observed that certain birds were to be seen in the winter months and so, in the canto on winter, he mentions them as often as he could conveniently introduce them in his poem. He also knew that these birds were not to be seen in the Indian landscape during the Summer and the rains, and therefore he completely leaves them out of his description of these seasons. In autumn and winter, ducks and geese abound in India. There is a prevalence of the white colour in Nature. So the poet says :—

हंसैर्जलानि सरितां कुमुदैः सरांसि

“ On all streams float ducks and in each tank bloom the white nymphias.”

The Hansas now arrive attendant on the Goddess of Autumn—

सोन्मादहंसमिथुनैरुपशोभितानि

“ In amorous couples the hansas disport themselves in the lakes.”

In the following slokas the specific names of certain birds are to be found :—

कारण्डवाननविघटितवौचिमाणाः

कादम्बसारसकुलाकुलतीरदेशाः ।

कुर्वन्ति हंसविरतैः परितो जनस्य,

प्रीतिं परां कमलरेणुवृतास्तटिन्यः ॥

“The *Kārandavas* with their beaks disturb the tranquil face of water; *Kādambas*¹ and *Sāruses* flock on the banks and the *Hansas* fill the countryside with their cackling.”

In the above passage we get the name of a bird which is not *anserine*. This is the *Sārus* which belongs to the family *grus*. The birds of this family with only one exception are migratory and winter in India; their arrival and departure being synchronous with similar movements of the ducks and the geese. In this instance, as the name occurs along with other migratory birds, the poet probably means a migratory *Sārus*. In another sloka also the name occurs side by side with that of the *Hansa* :—

सम्यन्नशालिनिचयावृतभूतलानि,

खस्थस्थितप्रचुरगोकुलशोभितानि ।

हंसैश्च सारसकुलैः प्रतिनादितानि,

सौमान्तराणि जनयन्ति नृणां प्रमोदम् ॥

“Now all the fields smile with golden crops of rice,
And herds of cattle in graceful groups recline;
The *Hansas* and the *Sāruses* both in company make
The welkin ring with their pleasing strain,
And thus fill the world with universal joy.”

The poet could not dispense with the *Sārus* in his description of Autumn because this bird is migratory, arriving in India in this season and leaving in March.

Thus we see, that in describing birds, though *Kālidāsa* does not distinctly, and in so many words, tell us that these birds are migratory, we can without hesitation pick out the migratory ones from the very correct and faithful description he gives us. Evidently while writing those descriptions he must have been thinking of the seasonal movements of those birds. It was not without knowledge of this phase of bird-life that he wrote; otherwise his descriptions would not have been so accurate.

¹ This bird has been identified by me in the following paper as *Anser ferus*.

Kālidāsa and the Migration of Birds. II.

By SATYA CHURN LAW, M.A., B.L., F.Z.S., M.B.O.U.

The Migratory Haṇsas and Rajhaṇsas in Kālidāsa's works.

India is a country rich in the number and variety of the birds of the family *Anatidæ*. As the ducks and geese are mostly migratory, in certain seasons the whole country teems with them and all marshy areas and lake districts as well as the large water-sheets are filled with their sonorous cackling. In the season when their inward migration takes place (which happens at the end of the rains) the landscape offers a wonderful sight. At night when one is half-asleep, the rhythmic symphony of the voice of these birds, passing in flocks of hundreds through the air at some great height, float down to one's ears with a dream-laden lulling effect. Often in the evenings the sky is flecked with white by the passing flocks. No artist, poet, or lover of Nature fails to be struck by the extraordinary change and novelty which the arrival of these birds lends to the scenery of the country. It is, therefore, not to be wondered at that Kālidāsa should introduce the Haṇsas so often in his works.

It is to be remembered here that the word Haṇsa in Kālidāsa, or in Sanskrit literature generally, refers only to migratory ducks and geese and has seldom reference either to resident species or to domestic birds. The Sanskrit lexicons (e.g. the Amarkosh)¹ also suggest that the Haṇsa is a migratory bird. In the canto on Autumn of his Ritusamhāra or the "Song of Seasons" the poet paints his canvas thick with Haṇsas. In the canto on Summer he does not present these birds to his readers. And the reason is simple, for, in Spring all migratory ducks and geese have left the country and if in summer any stragglers are yet lingering, they are few in number and are not easily noticed. And so in this season the poet does not bring the birds directly before his readers, to whom is suggested their existence by the tinkling of the bell ornaments of the ladies' feet resembling the cackle of the geese.

नितान्तलाक्षारसरागलोहितै-

नितम्बिनीनां चरणैः सनूपुरैः ।

¹ हंसास्तु श्वेतगरुतश्चक्राङ्गामानसीकसः —The last expression suggesting migration to the Lake Mānasa.

पदे पदे हंसखतानुकारिभि-
जनस्य चित्तं क्रियते समन्मथम् ॥

"At every step, imitating the voice of the geese, tinkle the anklets that adorn the feet of maidens—feet that are crimson-stained with the scented juice of scarlet lac."

In the next canto, (*viz.*, on the 'Rains,') Kālidāsa makes no mention of the Hansas and does not even hint at their solitary or scattered existence anywhere in Nature's back-ground. Evidently, the poet shows a remarkable accuracy of observation, for these migratory birds do not appear in India in these seasons.

But the Hansa finds mention in the very first stanza of his chapter on Autumn. The geese, we read, are attendant on the goddess of the season; at her approach

सोन्मादहंसखनूपुरनादरम्या

"The tinkling of her (the Goddess of Autumn) anklets is heard in the joyous cackle of the Hansas."

The rivers are full of these birds

कुर्वन्ति हंसविरतैः परितो जनस्य

प्रीतिं सरोरुहरजोरुणितास्तटिन्यः ।

"The Hansas, to the great delight of the people around, cackle gaily in the river, the surface of which is coated with lotus-dust."

The lakes also are decked with them

सोन्मादहंसमिथुनैरुपशोभितानि

खच्छप्रफुल्लकमलोत्पलभूषितानि ।

"The lakes, whose transparent water is ornamented with lotuses in full bloom, are decorated with amorous couples of Hansas."

It is evident therefore that Kālidāsa was aware of the seasons when birds of this family are to be found in India. His writings contain many references to the Hansas by their specific names. In the thirteenth canto of the Raghuvansam, we have a beautiful passage which describes the confluence of the rivers, the Ganges and the Jumna. The dark flow of the latter running into the limpid water of the former produces a mixture of colours which the poet describes by a number of similes. One of them is

क्वचित् खगानां प्रियमानसानां

कादम्बसंसर्गवतीवपङ्क्तिः ।

"In some places it (*i.e.*, the joint current of the two streams) looks like a row of the Mānasa-loving birds (*i.e.*, the Rājhaṅsas) mingling with the Kādambas."

This Kādamba is a species of Haṅsa. In the above passage the poet is clearly hinting at the difference in the coloration of the Kādambas and the Rājhaṅsas. The former is of a darker hue than the latter.

From Amarkośh we learn that the Kādambas and Kalahaṅsas are the same birds. कादम्बः कलहंसः स्यात् This is explained in Abhidhāna ratnamālā पक्षैराधूसरैर्हंसः कलहंसा इति स्मृताः—, which means that "they are geese with grey wings, otherwise known as Kalahaṅsas." The author of 'Abhidhānacintāmani' points out कादम्बास्तु कलहंसाः पक्षैः स्फुरति धूसरैः,— "Kādambas are Kalahaṅsas with grey on the wings." From this description we have no hesitation in identifying this species as the grey goose, *Anser ferus*. In Northern India its modern vernacular name is "Karhāns." That it has a pleasant voice is admitted by English sportsmen. Marshall and Hume in "Game birds of India, Burma and Ceylon" write—"The cackle of a large flock flying over-head at night, high in the air, is most sonorous and musical."

It is noteworthy that the poet, who generally describes the Haṅsas as floating in water, is careful in mentioning the banks as the place where the Kādamba is noticed :

कारण्डवाननविघट्टितवीचिमालाः

कादम्बसारसचयाकुलतीरदेशाः ।

Here the poet particularly draws a distinction between the Kārandabas and the Kādambas. The former with their beak create ripples in the water and therefore are necessarily in it ; the banks, however, are teeming with Kādambas and Saruses. The Kādamba or the grey goose, prefers to remain on land in the vicinity of water. As the geese are vegetarians and get their food by grazing, they keep to the land for a great part of the day. "During the hotter parts of the day they are generally found," says Hume, "dozing on some sand-bank at the water's edge." And Blanford, in the Fauna of British India (Birds), says "The Grey Lag feed on grass and green crops in the morning and evening and pass the day on the sands of one of the larger rivers, or the edge of a lake or marsh, rarely entering water." An ignorant poet would have described them perhaps as gracefully floating on the water for the very simple reason that the geese are aquatic birds. Not so Kalidasa ; his imagination seldom betrays him into a distortion of facts.

It is difficult to pronounce with any certainty whether the

Kārandaba belongs to Anatidæ. Kālidāsa has hardly left any description of its colour or habits. The writings of other Sanskrit poets do not throw any light from which any attempt at the identification of the Kārandaba from the scientific point of view can be hazarded. The Sanskrit lexicographers have, however, made some attempts to describe the colour and features of this bird, but the accounts they have left us are so vague, varied and conflicting as to make confusion worse confounded. For instance, Dallana Misra, the annotator of Suśruta Saṅghita says—

कारण्डवः शुक्लहंसभेदोऽल्पः ।

i.e., the Kārandaba is a Śukla Haṁsa with a slight variation. Again he has left another description which militates against the features that characterise the Anatidæ. Says he

उक्तञ्च “कारण्डवः काकवक्त्रो दीर्घाङ्घ्रिः कृष्णवर्णभाक्” इति

in other words the Kārandaba has crow-like beaks, long legs and black colour. In a similar way Maheshwar, the annotator of Amarkosh writes

अयं काकतुण्डो दीर्घपादः कृष्णवर्णः ।

Can any member of the Anatidæ be characterised by a crow-like beak, long legs and black colour? Gangādhara Kaviraj, the annotator of Charaka Saṅghita opines that Kārandaba is a Cormorant. The *Vaidyaka-Sabdasaṁdhu* explains the bird as a “Jacana.” Instead of wasting our energies in fruitless attempts to reconcile these various conflicting accounts all that we can do for the present is to leave Kārandaba out from the category of migratory Haṁsas.

Another bird of the Anatidæ family very often met with in his works is the Chakravāka. This bird finds frequent mention in the dramas of Kālidāsa. The belief obtains in this country that the chakravākas live in pairs throughout the days, but at nightfall the couple separates, the male keeping to one bank while the female crosses to the other bank of the river, lake or marsh as the case may be. In this condition they pass the night, calling to each other. According to folk-lore the birds bewail their lot and curse the night for causing their separation. The bird has come to be symbolic of love in forced separation. In describing a person in anguish, who has lost or has been separated from his object of love, he (or she) is compared to this bird. Hence in the Meghaduta we hear the Yaksha saying

तां जानीयाः परिमितकथां जीवितं मे दितोयं

दूरीभूते मयि सच्चरे चक्रवाकीमिवैकाम् ।

“ And sad and silent shalt thou find my wife,
Half of my soul and partner of my life,
Lone as the Chakravāki mourns,
Her faithful memory to her husband turns ” (Wilson).

In the drama *Vikramorvasie* we have the following passage, in which the raving King asks a Chakravāka for information about his lost love, Urvasie :—

अये, प्रियासहायश्चक्रवाकस्तिष्ठति । तावदेनं पृच्छामि ।

गोरोअणकुङ्कुमवस्त्रा चक्रा भणइ मइ ।

मज्जवासर कीलन्ती धणिआ ग दिट्ठि तुइ ।

रथाङ्गनामवियुतो रथाङ्गओणिबिम्बया

अयं त्वां पृच्छति रथी मनोरथप्रतैर्हतः ।

सरसि नलिनीपत्रेणापि त्वमावृतविग्रहां

ननु सहचरीं दूरे मत्वा विरौषि समुत्सुकः ।

... ..

मयि च विधुरे भावः कोऽयं प्रवृत्तिपराङ्मुखः ।

“ Ah ! younder stands a chakravāka with its mate. I wil l go to him.

“ Tell me O bird of the colour of *Kunkuma* and *Gorocanā* dye ! hast thou not seen a happy damsel sporting through these honey days ? O bird named Rathānga, it is a hero who asks thee.

“ When thy companion is only hidden from thee by the lotus-leaf in the lake, thou fanciest her far away and longingly utterest a forlorn cry ; such, through love of thy mate, is thy fear of being left alone. What then means this aspect towards me in my sorrow, refusing all tidings to my heart ? ” (Cowell's translation.)

In the above passage, it is to be noticed, the poet not only gives us a synonym of Chakravāka (viz., Rathānga) but also a description of the coloration of the bird,

गोरोचनाकुङ्कुमवर्ण

The tradition of a Chakravāka pair having to separate at night has been used most skilfully and with dramatic effect in *Śakuntalā*. In the third Act, the King Dushyanta comes upon Śakuntalā seated in a bower with her companions. The two companions depart, leaving the lovers together, to keep watch against intrusion. At a most intensely interesting moment of

the love-scene the aunt Gotami approaches the bower. The lovers are warned of her approach in these words

“चक्रवाकवज्रं आमन्तेहि सहस्रं । उव्हिदा रञ्जयौ ।”

“O She-Chakravaka ! take leave of thy companion, for here comes the night.”

The Chakravāka does not offer any difficulty in identification. Its modern Bengali name is *chakā-chaki* and its Hindustanee appellation is *chakwa-chakwi*. To Englishmen in India it is known as the Brahminy Duck or Ruddy Sheldrake and the ornithologists name it *Casarca ferruginea*. Kālidāsa has given us the colour of this bird—गोरोञ्जयाकुङ्कुमवशा. This is how an ornithologist describes *Casarca ferruginea*—“Head and neck buff (Gorocana), generally rather darker on the crown, cheeks, chin and throat and passing on the neck into the orange-brown or ruddy ochreous (कुङ्कुमवर्ण) of the body above and below” (Blanford).

The poetic tradition of comparing lovers to a pair of Chakravākas is based on fact. Though these birds are migratory they generally live in pairs. Hume says “They arrive in flocks, and before leaving in April gather again into these, but during winter they are almost invariably seen in pairs. Often several pairs may be seen congregating in the same place, but even then each pair separates on any alarm and acts on its own behalf and without reference to the others.” Mr. Stuart Baker in his “Indian Ducks” writes “In Bengal and further south probably, few people see them in flocks even when they arrive or when about to depart, as the flocks seem to break up soon after their arrival in Northern India, and the pairs then make their way to their final destination free from the influence of the birds they started with.”

As to the belief that these birds separate at nightfall and, keeping to the opposite sides of a stream, call to each other throughout the night till daylight appears, no scientist has taken the pains to establish the truth or otherwise of this legend. Mr. Stuart Baker mentions in his “Game Birds” the existence of such a legend, but is silent as to whether it is true or baseless. A sportsman, however, records having heard the night-long wailing of the Brahminy Duck, e.g., “Who is there, when travelling by river during the winter months, has not heard at night the warning call of *Kwanks*, *Kwanks*, repeated at intervals?—*this call seeming often to come and being answered from opposite banks*.” (Small game shooting in Bengal by “Raoul”). The italicised portion in the above passage is worthy of consideration. Hume and Marshall, however, assert that the pair keeps to the same side of the water alike by day and night, “except in the case of very narrow rivers.” It

seems it can hardly be denied that some vestige of truth lingers in the popular belief. It is an interesting question for investigation by ornithologists.

The Rāj-hansa.

Now it is necessary to find out which of the birds, known to us at the present day was so great a favourite with Kālidāsa and the Sanskrit poets under the name of Rāj-hansa. The word 'Rāj-hansa' may be translated as a King-goose and denotes that the bird is a hansa, i.e., a duck or a goose. The prefix 'Rāj' indicates that it is probably a bird possessing attributes superior to other species of the same family or order, either in shape, size or coloration.

The ducks and geese belong to the family Anatidae and the natural order under which they are now classed is called *Chenomorphæ*. The modern vernacular name of a few birds of the family Anatidae is Rāj-hans. Another bird, which used to be regarded by earlier ornithologists as belonging to a different order altogether, is now considered to belong to the same order as the ducks and geese. It is the *Phoenicopterus*, the modern vernacular name of which also is Rāj-hansa. Let us consider on which of these birds we may fix the identity of Kālidāsa's Rāj-hansa.

In this connexion we have to remember one thing. The Rāj-hansa is mentioned by the poet so often, and in so many different scenes, that we can safely assume that it is a widely-known species in India, being common at least in certain seasons. The numerous references to the Rāj-hansas, either in the *Meghaduta* or in the *Ritusamhāra*, testify to their occurrence in large numbers in India in particular seasons.

In Kālidāsa's description of Rāj-hansa the two note-worthy points which are of immense help to us in finding out the class or family, if not the exact species in which the bird might be placed, are :—

(1) That it migrates out of India in the month of Āshār which corresponds to the last half of June and the first half of July, and it returns to India in the season of Śarat which lasts from the second half of August to the first half of October.

(2) That they go to the lakes in the neighbourhood of Mt. Kailāsh, i.e., the lakes in the South-Western borders of Tibet.

The Sanskrit lexicographers have also left us a description, the importance of which can hardly be belittled. In the dictionary of Amarkosh this bird has been thus described—
राजहंसास्तु ते चक्षुचरणैर्लोहितैः सिताः, i.e., Rāj-hansas are birds of "sita" colour with their bills and feet red. The word 'sita' is loosely translated as white. But the word does not denote pure whiteness. The Amarkosh describes *sita* as सिते कुसुदकैरेव "Site

Kumudakairave." The author of Shabdārṇava explains "सितः श्यावः कदलीकुसुमोपमः" (Sita is Shyāba like banana flowers). The word shyāba is explained by Amarkosh to be श्यावः स्यात्कपिशः "Shyābah (syāt) kapishah" which Macdonell translates as "dark brown." Thus the dictionary meaning of the word, *sita*, signifies that mixed colours such as yellowish white, blackish white or pinkish white may be meant by this word. When white is tinged with black it is called *sita*, though this colour has a specific name, *arjunah*. That *sita*, where white is tinged with red, is technically called 'shyeta'—a word translated by Macdonell as "reddish white." Thus in Amarkosh we find thirteen synonyms of the word *sita*, viz.,

शुक्लशुभ्र शुचि श्वेत विशद श्वेत पाण्डुरः

अवदातः सितो गौरो बलक्षोद्यवलोऽर्जुनः ।

Evidently, therefore, the Sanskrit word 'sita' is not connotative of pure, absolute whiteness. The word is a general or generic term for all shades of white. Therefore, when the body colour of Rājhaṇsa is given as '*sita*' we are not to look for a bird of absolute whiteness. It may be any shade of white.

It is the colour of the bills and feet—चञ्चुरणैल्लोहितैः—which will be the real test for our purpose. If we can find a migratory bird which has red bills and feet, possesses a *sita*-coloured body (i.e., any shade of white), migrates in June or July returning in Sarat, i.e., between August and September, we may with some amount of confidence declare it to be the Rājhaṇsa of Kālidāsa's poetry.

Now, there are many birds which are called in vernacular Rāj-hansa and so, it is desirable to enumerate them with a short description of each in order to find out if any of them corresponds to the tests or requisites of a Rājhaṇsa as prescribed or delineated by Kālidāsa and other Sanskrit authors.

(1) *Anser brachyrhynchus*.—The pink-footed goose.

Coloration :—Head and neck brown with a few whitish feathers at the base of the bill; back and wings greyer, the feathers with pale borders; rump blackish grey; tail, a few feathers white, others greyish brown; lower parts greyish or brownish white.

About the colour of its bills and feet Stuart Baker says "Legs and feet deep rosy red; bill a carmine pink, base and nail black" (Game-birds, I, p. 93). This bird may be called a "*sita*" bird and, so far, the description approaches that of the Rājhaṇsa. But the difficulty is that it is a very rare bird in India. Very little is known of its distribution. Blyth, Hume and Macleod's records were disbelieved by Blanford;

and Salvadori opined that "its alleged occurrence in India requires further evidence." Mr. Stuart Baker only once came across this bird and wrote, "In spite of Salvadori's doubt this beautiful goose has now been ascertained beyond question to visit India." Even if it does occur it is an extremely rare bird, not generally met with. Kālidāsa's Rājhaṇsa is, as I have pointed out before, not a rare bird at all, as it becomes very common in certain seasons.

(2) *Anser ferus* or *Anser anser*.—The Grey Lag Goose.

Coloration :—"Lower back and rump french-grey ; upper tail-coverts white ; remainder of upper plumage ash-brown ; lower neck in front, breast and abdomen pale greyish brown ; the abdomen with more or less blackish spots sometimes confluent, at others almost absent ; remainder of lower plumage white ; two outer pairs of tail-feathers white ; the central brown, tipped white, and the others brownish at base changing to white at the tip.

The bill, legs and feet vary from creamy-white, with only, in places, a faint tinge of pink, through pale somewhat livid fleshy-pink to a dingy livid purplish-red." (Stuart Baker, *Game birds*, Vol. I, p. 75.)

About its distribution Stuart Baker says that it is found throughout Northern India, but it is far more numerous to the west than to the east. He adds that "it breeds quite possibly in parts of the Himalayas." One of the modern Hindustanee appellations of this bird is Rājhaṇs.

But this bird is an early breeder. In India it occurs up to the beginning of March when it leaves for the northern regions. So, this bird can hardly be Kālidāsa's Rājhaṇsa.

(3) *Anser indicus* :—The Bar-headed goose.

Coloration :—"Head white with two blackish bars on the nape ; hind neck brown-black ; a longitudinal white band on the sides of the neck ; upper plumage pale-ashy, the feathers edged with whitish ; sides of the rump and upper tail-coverts whitish" (Stuart Baker). "Lower back and rump pure ashy grey ; primaries pale ashy with blackish tips ; foreneck brownish ashy passing into whity-brown on the breast ; lower abdomen and flanks pure white ; tail-feathers pale grey, white-edged." (Blanford.)

"Legs and feet are light orange ; bill orange-yellow to orange." (Hume.)

"A winter visitor to India from October or November to March or April. This is by far the commonest goose of Northern India where it occurs in small or large flocks, with the usual habits, feeding on grass and crops of wheat, barley, gram,

etc., in the morning and evening, and often at night, passing the day on the banks of a river or lake. Breeds in May and June on the lakes of Tibet." (Blanford.)

"The habitat of this goose is India and Northern Burma during winter." "They arrive in India in the end of October. They leave these parts (Bengal) earlier than they do elsewhere, and there is little chance of any being found after the end of February." (Stuart Baker.)

This bird has no doubt a *sita* body-colour, but the bills and feet are not exactly "lohita" or red. And as it migrates very early, this bird does not seem to be the poet's bird.

(4) *Phoenicopterus antiquorum* :—The Common Flamingo.

Coloration :—Whole plumage a beautiful rosy-white." Bill bright flesh-coloured, edge of mandible and terminal portion of bill black; legs and feet pinkish-red." (Stuart Baker, Game Birds, Vol. I, p. 3.)

The coloration, therefore, corresponds to the description of the Rājhaṇsa given in Amarkosh. That the rosy-white Flamingo is a '*sitābayab*' bird is plain from the explanation of the word '*sita*' I have given above. Of its distribution Stuart Baker writes, "In India the Flamingo is found more or less throughout the continent." About its migration he says, "They generally leave Northern India in May or June, though they have been seen in July, and the first few birds return in the end of September."

So also does the poet's Rājhaṇsa. It undertakes its long journey as soon as the rains arrive. This happens in India sometimes at the end of May if the rains are rather early, but usually in June. The Rājhaṇsa re-appears according to the poet, in Śarat which begins in the last half of August and includes September.

In the case of the Flamingo, therefore, the body-colour and the migratory season exactly tally with those of the poet's Rājhaṇsa.

By describing the Rājhaṇsa as "*bisakisalayaccheda-pātheyavantah*" (carrying as ration new sprouts of the lotus) the poet indicates that it is a vegetable feeder. The Flamingo also is known to live mostly on such food. "We know," says Stuart Baker, "that a considerable part of their diet is vegetable."

In one place our poet has given us a most beautiful description of the Rājhaṇsa's gait. This passage is the continuation of the one from the drama *Vikramorvasie* which I have quoted before. It runs thus—

यदि हंसगतानते नतम्भः

सरसो रोषसि दृक्पथं प्रिया मे ।

मदखिलपदं कथं नु तस्याः

सकलं चोरगतं त्वया गृहीतम् ।

गइ व्यगसारे मइ लक्खिज्जइ

हंस प्रयच्छ मे कान्तां गतिरस्यास्त्वया हृता

विभावितैकदेशेन देयं यदभियुज्यते ।

“ If, O *Hansa*, my beloved, with the arched brows, hath not passed in the path of thy vision along the shore of this lake, how is it that thou hast stolen the beautiful, love-faltering gait of hers ? Your imitation of her gait tells me that thou hast.

“ O Flamingo, give me my fair one; thou hast stolen her gait; she is recognised by that single feature; when the charge of having stolen even a part is proved against a person, he has to deliver up the whole.

O (bird) of seductive gait, where couldst thou have learnt that step of thine ? Thou must have seen my beloved whose gait is slow, rhythmic under the weight of her hips.”

It seems that the beautiful gait of the bird had caught the imagination of the poet and he at once compared it with the slow, staid, rhythmic and ravishing steps of a beautiful well-formed woman. This comparison does not seem to be an exaggeration. Even a scientist has not failed to mark the beauty of the Flamingo's gait. “ Flying or wading,” writes Stuart Baker, “ they are a lovely sight and often, as they have been described, no one has yet been able to do justice to their beauty ” (Game Birds, Vol. I, p. 7).

From the above it is evident that everything points to the Flamingo being the poet's *Rāj-hansa*. But there is one difficulty. The poet names the Lake *Mānasarowara* as the destination of the bird; but no record¹ exists of the Flamingo occurring in the lake or in the surrounding country. Ornithologists leave out Tibet from its range of distribution. “ Its principal breeding-places,” says Stuart Baker, “ lie in Africa, and in Arabia and the Persian Gulf. It also breeds in Spain, and is said to do so in the Rhone Delta.” Because it happens that the Flamingo has not been recorded from Tibet or the *Mānasarowara*, it is easy to see that the discrepancy is apt to be ascribed to Kālidāsa's ignorance of bird-life, but it must be remembered that although he has so long been remarkably correct in his observations, we cannot expect from him the accuracy of a scientist. Besides, we can readily realise that from the belief current in Sanskrit literature that all *Hansas* are visitors to the *Mānasarowara*, Kālidāsa might have concluded that the *Rāj-*

¹ The only record that we have of the nesting-place of the Flamingo within Indian limits is from the Runn of Cutch.

hansa also does the same. But is it very improbable that Flamingoes should visit Tibet? The migratory movements of the Flamingo have not yet been definitely ascertained. We still do not know all the countries where this bird breeds. We do not even know whether it migrates in a latitudinal or in a longitudinal direction? What definite proof is there to preclude us from supposing that the Flamingo breeds in the salt-lake regions of Tibet?

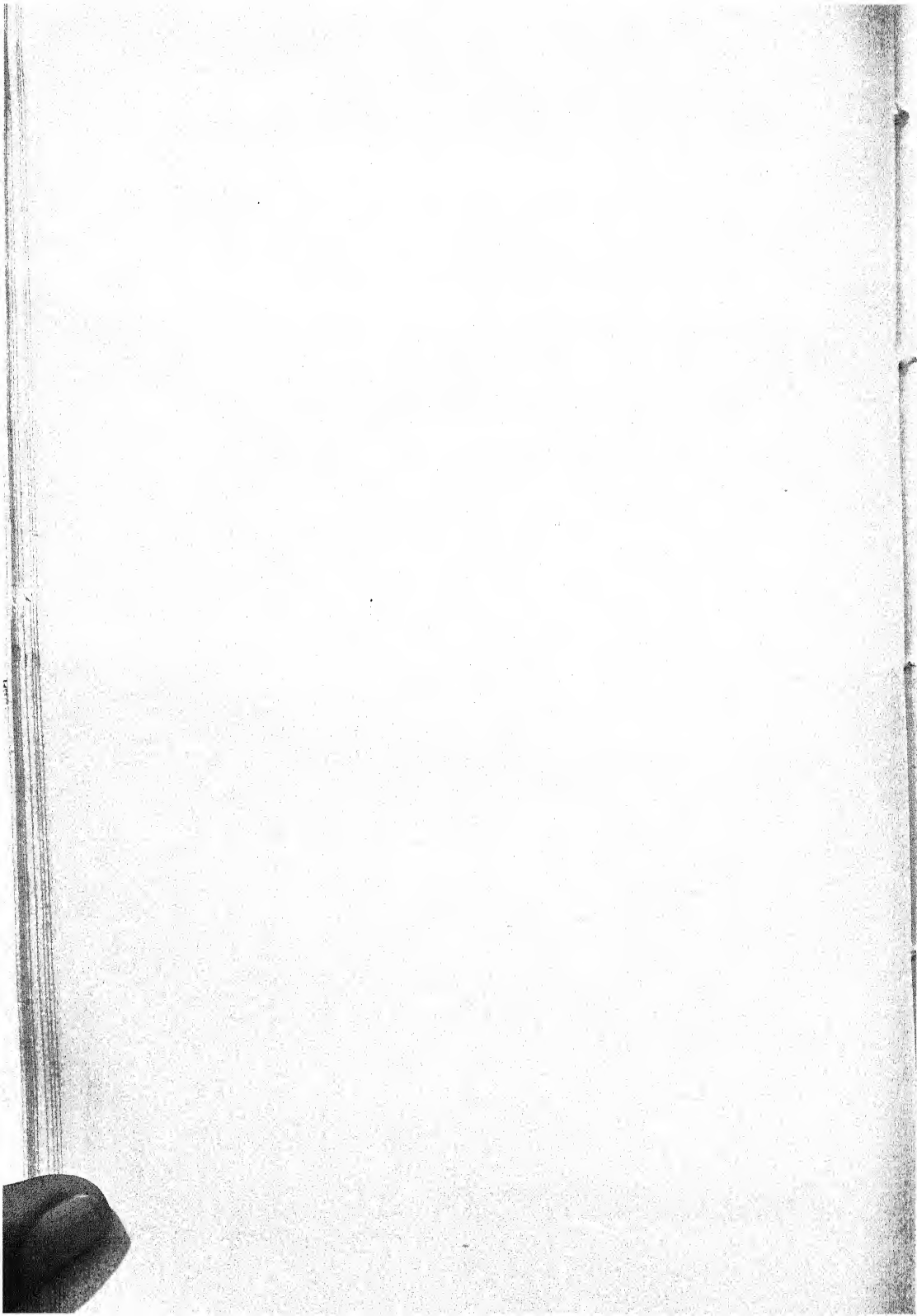
In August 1924, while staying in the town of Vizagapatam on the east coast of the Deccan, I noticed on three different dates three huge flocks of Flamingoes winging their way over the sea within a mile and-a-half of the shore. The first flock was noticed on the 19th; the second on the 20th and the third on the 24th. It is worthy of notice here that these dates fall in the season known as Śarat which comes after the Rainy Season, and Kālidāsa has repeatedly mentioned that the Rāj-hansa's arrival in India synchronises with the advent of Śarat. Though no English Ornithologist has till now recorded their presence so early, the birds I saw bear out the truth of Kālidāsa's statements regarding the time of their arrival in India.

These flocks were coming from the north and held their course as long as they were within sight, exactly straight for the southern point of the compass. From what Messrs. Blanford and Stuart Baker have written, it would seem that it was too early for their inward migration. But two considerations will leave no doubt as to this being their journey back to India. These are—firstly, August is too late in the day for the beginning of their breeding season; and, secondly, the birds were bound for the south, in which direction their breeding haunts are not known to exist. Those birds that left India earliest (*i.e.*, in May) and were somewhere very near the frontiers of India are quite likely to return to India in August after having finished their nidificatory duties. When one finds that a bird which migrates out of India in May at the earliest, returns as early as the 19th of August, one is naturally led to suppose that the bird has been sojourning these few months somewhere in the close neighbourhood of India.

The Flamingoes as a rule affect salt-water. The sea-coast is therefore the place which they generally frequent when there is no inland salt-water lake or marsh in a country or continent. In Europe the birds keep to the Mediterranean area and are rarely, if at all, found in Central Europe where there are no salt-water lakes. But in the Caspian Sea and Turkestan which contains the Sea of Aral, the Flamingoes are plentiful. I do not think the birds in question were coming from these regions, for they seemed to come directly from the north and held their course for somewhere in the Deccan or even farther south, as the Vizagapatam route is very round-about for birds coming from Central Asia. These birds could not have been coming

from the Mongolian, Chinese or Baikalian regions. Legge says, "Mr. Dresser states that it has been shot once at Lake Baikal and this is the only record I can find of its occurrence in Siberia. It is not found in the Mongolian or Chinese region." The reason for their absence in these regions is simple. They are devoid of salt-water lakes.

The only place on the borders of India and to its north (from which direction the birds in question seemed to have been coming) is Tibet which has a number of salt-water lakes in its south-western regions. No record, however, exists of the occurrence of the Flamingo in Tibet, and as I have mentioned before, it is a country the Avi-Fauna of which has been little studied. No ornithological traveller appears to have yet visited this lake region between the months of May and September, the breeding period of the Flamingo. In the absence of evidence to the contrary, it is hard to ignore the possibility of the salt-lake region of Tibet in the neighbourhood of Mt. Kailash (in which region falls the Lake Mānasarovara) as a breeding ground of the Flamingoes in common with the *Bar-headed Goose* (*Anser indicus*), evidence of whose nidification in this region has recently been available.



Studies in Bombay Fish.

1. Revision of the genus *Drepane* (Cuv. and Val.).

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(Communicated by Dr. S. L. Hora.)

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Introduction.

While going over the collection of fishes made by the late Marine Biologist to the Government of Bombay, I came across a single specimen of the genus *Drepane*, a figure of which has already been published in his report (13). The perusal of literature regarding the classification of this genus has, however, revealed some discrepancy with reference to the true nature of its species and varieties. In order to clear up the uncertainty and base the classification on definite characters, both morphological and anatomical, I have undertaken the revision of the genus and embodied the results of my investigation in this paper.

Historical Resumé.

The genus *Drepane* was first created by Cuvier and Valenciennes (3) to distinguish the deep-bodied quadrangular fishes with long scythe-like pectorals, tapering to the base of the caudal. Prior to the above writers, these species were included by Linneus (1) in the genus *Chaetodon*, owing to their similarity in size and shape, and also to the similarity in the possession of brilliant silvery gloss on sides. Bloch, Lacepede, and Russel (2) followed Linneus in the nomenclature of the genus and added a few more species.

Cuvier and Valenciennes (3) had made as far as possible a thorough investigation of the genus. They had studied the morphology and the anatomy of preserved specimens sent to them from different parts of the Indo-pacific region, viz., Malabar,

Pondicherry, Java, and Port Dorey in New Guinea. These authors, in the light of their investigation, created a new genus and reduced the number of old species to two. The following table shows the classification adopted by them :—

| | | |
|------------------------------------|---|----------------------------------|
| <i>Choetodon punctatus</i> Linneus | } | <i>Drepane punctatus</i> (Linn.) |
| „ <i>falcatus</i> Lacepede | | |
| „ <i>latte</i> Russel | | |
| „ <i>longimana</i> Bloch. | } | <i>Drepane longimana</i> (Bl.) |
| „ <i>terla</i> A Russel | | |
| „ <i>terla</i> B Russel | | |

The later authors have recognised the genus created by Cuvier and Valenciennes, as comprising only one species, *D. punctata* (4). The other species has been taken by them as its variety. They have, moreover, described some new varieties. Bleeker (4) has four varieties to his credit, and Günther (5) has added one more. Day (7) has followed his predecessors in retaining a single species but has suggested that Cuvier and Valenciennes might be right in maintaining two species in the genus.

While the specimens from the Indo-Pacific region were being investigated and adjudged of their position in the new genus, specimens from the Atlantic Ocean were being collected and named differently. Cope (6) and Osorio (9) named their specimens from the western coast of Africa as *Criptosmilia luna* and *Drepane octofasciata*, respectively. Pelegrin (12), however, later on identified the latter as the second variety of Günther's *D. punctata*.

The above historical review will not be complete without a brief description of the different varieties of various ichthyologists. The description is as follows :—

- (1) *D. punctata* Cuv. and Val. with 8 to 11 transverse rows of spots on sides.
- (2) *D. longimana* Cuv. and Val. with sides unmarked.
- (3) *D. punctata* C Günther with 8 transverse bands on sides.
- (4) *D. punctata* var. C Bleeker with black spots on the dorsal fin.
- (5) *D. punctata* var. D Bleeker with a yellow band along the dorsal fin.
- (6) *D. punctata* var. E Bleeker with a brown band along the dorsal fin.
- (7) *D. punctata* (*terla* B Russel) with a red band along the dorsal and anal fins.

It is my surmise from the descriptions of the above varieties by different writers that the forms from No. 3 to No. 7 (both inclusive) may be only variants of the single species, *D. longimana*, as these forms are shown to have only slight variations in the pigmentation unaccompanied by any

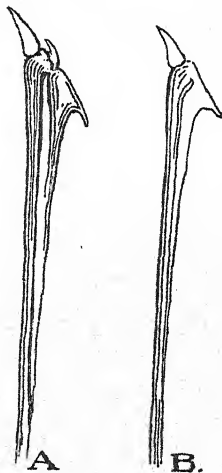
structural differences. It will be shown later on that the pigment in some specimens at least of this genus is not a constant character and cannot be used for specific difference as it is not seen at all in some specimens of the same variety. Thus only two forms *spotted and plain* can be based on definite structural differences and this paper deals mainly with their differences.

I have thoroughly investigated nearly 50 fresh specimens of each of the two types. Moreover, I have had an opportunity of examining all the specimens of this genus preserved in alcohol in the Indian Museum at Calcutta.

The constant structural differences between the two types are described below under different headings.

I. Morphological Differences.

1. *Dorsal Spines*.—The spines in the dorsal fin of the spotted type are invariably nine and in the plain type they are always eight. The second dorsal spine of the former corresponds to the first of the latter, as each of them is supported by the radial between the first two vertebrae. It is



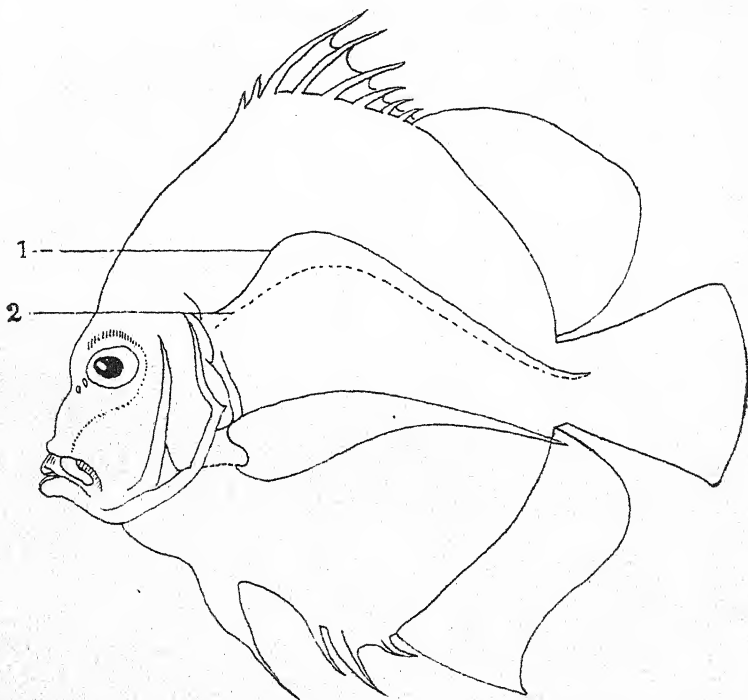
Text-fig. 1.—Radials between the first two vertebrae.

A. Radial of *D. punctata* supporting the first two spines; B. Radial of *D. longimana* supporting the first spine.

a short stout spine situated on the summit of the arched back of the fish. Its radial differs in outline in the two types. In the plain type (Fig. 1B) its anterior keel-like median expansion is broader and the forward oblique process is shorter than those of the spotted. The sharp end of the process cuts its way out of the body, and it has been referred to by Day (7) as

the forwardly directed spine. In the spotted form this radial (between the first two vertebrae) supports the second and the first or additional very small spine. Its keel is narrow and expanded laterally along its anterior margin. Its forward process is long but concealed under the skin. On the whole it looks like two radials inseparably joined together. The difference in the number of dorsal spines is a character constant throughout the life of the individual.

2. *The lateral line.*—Another constant difference is



Text-fig. 2.—Differences in the curvature of the lateral line of the two species of *Drepane* are shown in one figure.

1. *Drepane longimana*; 2. *D. punctata*.

afforded by the curvature of the lateral line (Fig. 2). In the spotted form the lateral line ascends gradually and then descends slowly, forming a low symmetrical arch. In the plain form, it begins higher up and ascending rapidly describes a strong upward curve.

3. *Coloration.*—Four to eleven rows of black spots are seen on the upper half of the sides in the spotted form. With the age of the individual these spots increase in size from a pinhead to a nailhead. The number of the rows begins with

four in 2" specimens and increases to eleven in 9" specimens. The number of the rows required of any individual of the definite length may not be present on each of its sides. The spots in each row may also vary in number. With the further growth of the individual the rows remain constant in number (i.e., eleven), though the spots seem to double in the lower half of some of the rows (Pl. I, fig. 1).

If the eleven rows of 9" individual are numbered from head to tail (*vide* the following table), the four rows, found first in 2" individual, correspond to the 1st, 3rd, 7th and 11th of the full-grown fish. In the 4" individual the rows 4th, 5th, 6th and 9th are added; in the 7" specimen rows 2nd and 8th become visible; and in 9" specimens the 10th row appears. Thus the number of rows of the full-grown fish is reached by the intercalation of rows between the four rows first found in 2" individuals. With the further growth of the individual, instead of the rows the spots increase in the lower half of the rows 3rd and 5th.

Table showing the position and number of the rows of spots present in specimens of different lengths.

| Length of specimens in inches. | Number of rows from head to tail. | | | | | | | | | | | Remarks. |
|--------------------------------|-----------------------------------|----|----|----|----|----|---|----|----|----|----|-------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| 2 | P | .. | P | .. | .. | .. | P | .. | .. | .. | P | Spots increase in size. |
| | " | .. | " | .. | P | .. | " | .. | P | .. | " | |
| 4 | " | .. | " | P | " | P | " | .. | " | .. | " | |
| 5 | " | .. | " | " | " | " | " | " | " | .. | " | |
| 7 | " | P | " | " | " | " | " | P | " | .. | " | |
| 9 | " | " | " | " | " | " | " | " | " | P | " | |
| 11 | " | " | " | " | " | " | " | " | " | " | " | |
| 12 | " | " | "* | " | "* | " | " | " | " | " | " | |

* Spots are seen to double in the lower half of these rows.

In addition to these rows of spots, there are minute brown dots distributed all over the surface of the spotted type. In the plain type on the other hand, the black spots are altogether absent, though the tiny brown dots are present. The latter are, however, arranged to present a faint gray trellis-work round the scales.

In the spotted type, blue black, vertical bands are seen underlying the vertical rows of spots described above. These bands correspond to these rows of spots in number, length,

sequence, and position. These are distinct in small, faint in middle-sized, and almost invisible in very large individuals.

In the plain type (Pl. I, fig. 2) on the contrary, these bands are broad and gray. They gradually widen as they descend from the top to the middle of the body. Some of them may stop short at the lateral line. Their number varies from four to nine. The second band of the plain type seems to correspond in position to the first of the spotted. In some individuals they appear to be absent though the underlying pigment is present.

Besides the above three main differences between the two forms, there are two others of a minor nature.

4. *The Sexes.*—In the spotted type, out of the fifty individuals examined in the laboratory, forty-nine were found to be males and only one female. In the fifty individuals of the plain type, forty-seven were found to be females and three males. In the mature specimens of both the types exposed for sale, during April and May of 1923 and 1924, eggs could be pressed out of the plain individuals only, and not at all out of the spotted. For a considerable time, therefore, it appeared to be a case of sexual dimorphism till a male in the plain type and a female in the spotted were found.

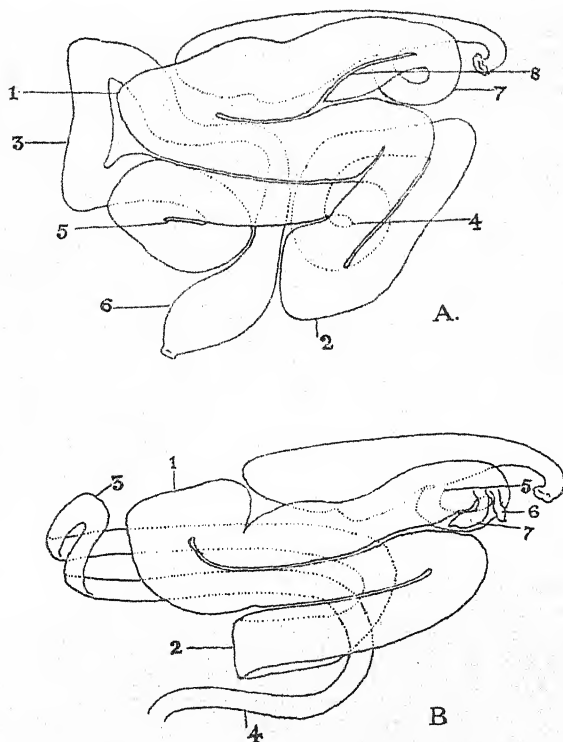
5. *Size.*—The average length of the spotted *Drepane* has been found to be 8 inches and that of the plain 7 inches. The length of mature specimens in both the types generally varies from 2 to 9 inches, though a few individuals of the spotted type were as long as 15 inches.

II. Anatomical Differences.

1. *The Alimentary Canal.*—In both the types, the oesophagus is short, the stomach elongated, and the pylorus short and thick. In the plain type the pyloric caeca, which are three, have their lengths in the ratio of 4, 2 and 1. In the spotted form, however, there are only two caeca, one of which is half the length of the other. The 3rd caecum is represented in the spotted type by a small pocket in its position.

In the spotted type the intestine (Fig. 3A) begins at the origin of the pyloric caeca at the anterior end of the stomach. Immediately after its origin, it turns on itself and goes to the posterior end of the body cavity on the right side of the stomach. At this end, again turning on itself in a vertical plane it returns to the anterior end below one of the pyloric caeca. This is the first intestinal loop. It is continued vertically downwards, forming the descending limb of the second loop. Its ascending limb is continuous with the third loop, which extends below and parallel to the first loop. This is partly on the left side of, and partly behind the second loop. Its backward arm is twisted into two knots just beneath the

stomach. One of the knots can be seen on the right side. The trough of the third loop widens along the posterior wall of the abdominal cavity and can be seen from both the sides. Its forward limb is situated partly behind and partly below the stomach. After reaching half the length of the stomach, it abruptly bends ventralwards, and after a short distance



Text-fig. 3.—Alimentary canals of the two species of *Drepane* as seen from the right side.

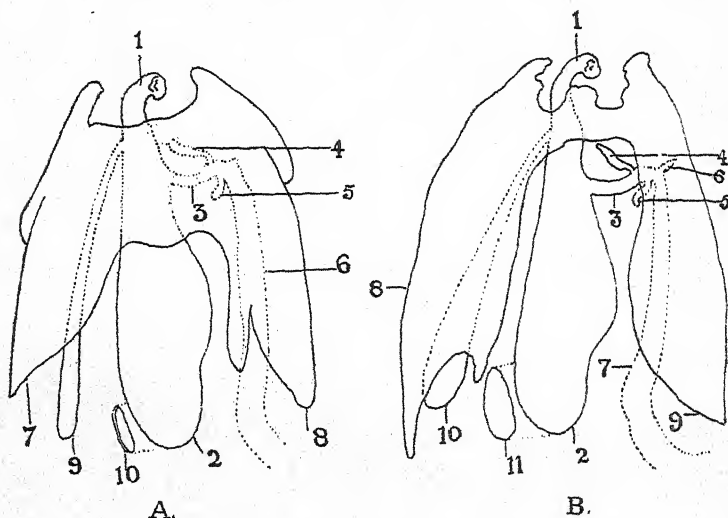
A. *D. punctata* ♂. 1-3, intestinal coils; 4, 5, intestinal knots; 6, rectum, 7, pylorus; 8, pyloric caecum.

B. *D. longimana* ♂. 1-3, intestinal loops; 4 rectum; 5 pylorus; 6, 7, pyloric caeca.

forms the rectum. The rectum, which is situated partly between and partly below the two knots mentioned above, runs obliquely backwards to the anus. The parts of the intestine not seen from the right side are indicated by dotted lines in the figure. A single caecum is shown in the same figure.

In the plain type (Fig. 3B) the oesophagus, the stomach, and the pylorus are similarly situated. The intestine, as in

the spotted type, forms the first loop on the right side of the stomach. This loop, instead of pointing backwards as in the spotted, is bent upwards. The second loop is beneath the first and is directed backwards. The returning limb of the second loop is in the left half of the body cavity and not seen from the right side, as in the spotted. It is shown by dotted lines in Figure 3B. At the anterior end it is continued into the third loop, placed between the second loop and the stomach on the left side. The limbs of this loop are longer than the body cavity and, therefore, are obliquely folded back on themselves.



Text-fig. 4.—Ventral view of the viscera of the two species of *Drepane*.

A. *D. punctata* ♂. 1, oesophagus; 2, stomach; 3, pylorus; 4, 5, pyloric caeca; 6, intestine; 7, right lobe of liver; 8, left lobe of liver; 9, gall bladder; 10, spleen.

B. *D. longimana* ♂. 1, oesophagus; 2, stomach; 3, pylorus; 4-6, pyloric caeca; 7, intestine; 8, right lobe of liver; 9, left lobe of liver; 10, gall bladder.

This folded portion lies behind the upturned part of the first loop. The forward limb of the third loop is partly seen from the right side and is partly behind the first loop. At the anterior end of the third loop, the intestine descends and is continued into the horizontal rectum. The descending part of the intestine crosses both the limbs of the second loop on its left. This part of the intestine is shown in Figure 3B by a chain line to indicate that the number of folds of the intestinal tube at this spot is three.

When the two figures are compared, it will be seen that Fig. 3B lacks the two knots of Fig. 3A. If these knots are

omitted from the latter, it will be seen that the intestine in Figure 3A contains the same number of loops which occupy similar positions with reference to the stomach as in the Figure 3B. The directions of some of the loops are not similar in both the figures. The second loop in Figure 3B is directed backwards; while in Figure 3A it points obliquely downwards. When the alimentary canals of both the types of equal size are measured, it is found that the length of the intestine of the spotted is to that of the plain type as 6 to 5. This extra part of the intestine in the spotted type is contained in the two knots.

2. *Liver and Spleen*.—In the spotted type (Fig. 4A) the two lobes of the liver are short and thick. They are anteriorly united to form a broad bridge beneath the pylorus. The ventral and outward surface of this bilobed liver is quite smooth, but its dorsal and inward side is produced into irregular prominences, in order to accommodate the irregular coils of the alimentary canal. The gall-bladder is tubular and has a long cystic duct.

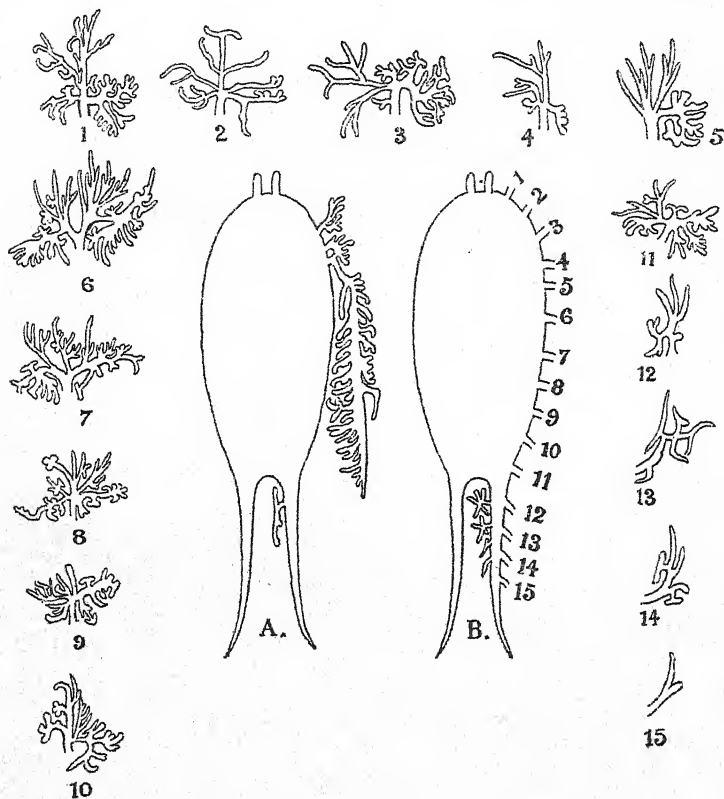
The spleen is long, narrow, and triangular in cross section. It is attached to the dorsal side of the posterior end of the stomach.

In the plain type (Fig. 4B) on the other hand, the lobes of the liver are longer and considerably thinner than those of the spotted, though their position and arrangement are similar. The confluence of the lobes is very narrow. The right lobe, tapering to a point, extends beyond the gall-bladder. The latter is tubular and the cystic duct as long as that of the spotted. The spleen is very thin and oval in outline.

3. *The airbladder*.—A marked difference is found between the two types in number, growth, and attachment of the lateral caeca of the airbladder. In the spotted form (Fig. 5A) it has two long and tubular posterior horns, and two very short anterior horns. At each of the anterior corners, the bladder has two caeca, which, sending out lateral flattened branches, extend halfway down the margin of the bladder. The caeca and their branches are tied together by a soft and transparent connective tissue, which gives them the appearance of a thin ribbon wedged in between the bladder and the body wall. There is a pair of caeca between the posterior horns, but they are very short.

The air-bladder of the plain type (Fig. 5B) on the other hand, has on each side about fifteen lateral caeca which are much branched. The caeca and its branches are packed in a soft and transparent connective tissues so as to form a triangular ridge. This surrounds the bladder and tapers along the margin of the posterior horns. The extent of branching of the lateral caeca is diminished towards the posterior end.

The branches of each caecum are divisible into three parts: two lateral and one median. The lateral branches are flat and broad, and are pressed against the dorsal and ventral surfaces of the bladder, while the median branches are tubular and extend out to the skin. The triangular ridge of the caeca on



Text-fig. 5.—The air-bladder of the two species of *Drepane*.

A. *D. punctata* with the caeca of the right side not shown.

B. *D. longimana* with the caeca of the right side not shown.

The caeca of the left side are cut at their bases and are shown in separate figures 1–15, disentangled and reduced to one plane.

each side is so big that special pockets are found between the ribs for its lodgment.

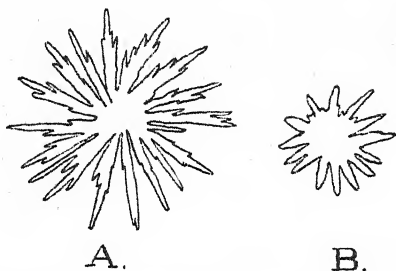
The air-bladder of the plain type is larger and its posterior horns longer than those of the spotted. There are three pairs of lateral caeca issuing from the inner margins of the posterior horns.

4. *Pigmentation*.—Epidermal as well as hypodermal

pigment cells are present in both the types. The spots are formed by the close aggregation of pigment cells in the thin membrane lining the pockets of scales. The minute dots of the spotted, and the gray trelliswork of the plain are also formed by this epidermal pigment. The vertical bands of both the types are, on the other hand, due to the hypodermal pigment cells. These are not so closely collected together as the pigment cells of the spots. In some bright specimens, fresh as well as preserved, the vertical bands are not seen on the surface, though the pigment cells are present under the fibrous connective tissue.

The pigment cells are of two kinds. In one (Fig. 6B) the central cavity is large, black, and with a few short radiating processes. In the other kind (Fig. 6A) the central cavity of the cell is very small and the radiating processes are long, brown, and branched.

The above structural differences between the two types



Text-fig. 6.—Two types of pigment cells (magnified).

require the retention of the two species, viz., *D. punctata* (Linn.) and *D. longimana* (Bl.), as done by Cuvier and Valenciennes. As the descriptions of the species given by the former writers require to be modified in the light of the present paper, I redescribe them. The description is as follows:—

Drepane punctata (Linn.).

Choetodon punctatus, Gmel. Linn. p. 1243; Bl. Schn. p. 231; Shaw Zool. IV, p. 365.

Choetodon falcatus, Lacép. IV, pp. 452, 470.

" *latte*, Russel, *Fish. Vizag.* p. 62, Fig. 79

Ephippus punctata, Cuv. *Rég. Anim.* II, p. 191.

Drepane punctata, Cuv. and Val. VII, p. 132, pl. 179.

" " var. a, Bleeker, *Verh. Bat. Gen. XXIII*, *Choetod.* p. 23.

Harpochirus punctata, Cantor, *Catal.* p. 162.

Drepane punctata, type B, Günther., *Catal.* II, p. 62.

D. 9/21; A. 3/18; L. l. 50-55. L. tr. 14/33. Cae. pyl. 2.

Length of head from $2\frac{1}{2}$ to 3, of pectoral $1\frac{1}{2}$, height of body $1\frac{1}{4}$ in the total length (exclusive of caudal fin). *Eyes*—diameter from 3 to $3\frac{1}{2}$ in length of head, 1 to $1\frac{1}{2}$ diam. from end of snout, and $\frac{2}{3}$ to $\frac{3}{4}$ apart. *Fins*—dorsal spines strong; the 4th is the longest in adults; the rays longer than the spines; pectorals sometimes reaching to the base of the caudal; second anal spine the strongest and generally the longest; caudal with its central rays slightly produced. In a young individual ($1\frac{3}{10}$ inches long) the last six rays of the dorsal fin are of equal height. *Lat. line*—like a low symmetrical arch. *Colour*—silvery, having a gloss of gold and tinge of purple; 4 to 11 rows of black spots on the dorsal half of the sides; a corresponding number of black bands underlying the rows, the bands often absent in specimens about 12" long. In very young individuals (less than two inches long) the sides are uniformly violet or gray.

The intestine is $\frac{1}{2}$ th time longer than that of the next species, and is twisted into two knots, besides the coils common to both. The air-bladder is smaller than that of the other, and has only two lateral caeca. The liver lobes, the spleen, and the gall bladder differ from those of the other in outline, and thickness.

Distribution.—From the Red Sea and East Coast of Africa through the seas of India to Australia.

Drepane longimana (Bl.).

Choetodon longimana, Bl. Schn. p. 229.

„ *terla A and B*, Russel, *Fish. Vizag.* pp 63, 64, Figs. 80, 81.

Ephippus longimanus, Cuv. *Re'g. Anim.* 11, p. 191.

Drepane longimana, Cuv. and Val. VII, p. 133

Drepane punctata var. *b, c, d* and *e*, Bleeker, *Verh. Bat. Gen.* XXIII, *Choetod.* p. 23.

Drepane punctata types *A and C*, Günther, *Catal.* p. 62.

Harpoichirus longimana, Cantor, *Catal.* p. 163.

Cryptosmilia luna, Cope, *Trans. Am. Phil. Soc.* XIII, p. 401.

Drepane octofasciata, Osorio, *Journ. Sc. Math. Phy. Natur. Lisboa*, Vol II, p. 207.

D. 8/21; A. 3/18; L. 1. 50-55; L. tr. 14/33; Cae. pyl. 3.

Length of head from $2\frac{1}{2}$ to 3, of pectoral $1\frac{1}{2}$; height of body $1\frac{1}{4}$ in the total length (exclusive of caudal fin). *Eyes*—diameter from $2\frac{1}{2}$ to 3 in length of head, 1 to $1\frac{1}{2}$ diameter from end of snout, and $\frac{2}{3}$ to $\frac{3}{4}$ apart. *Fins*—dorsal spines strong; the 3rd the longest in adults; in front of the first spine a pointed forward process of a radial; the rays longer than the spines; pectoral sometimes reaching to the base of the caudal; second anal spine the strongest and the longest; caudal with its central rays slightly produced. In a young individual ($1\frac{1}{10}$ inches long) the last 6 rays are of equal height. *Lat. line*—like a strong upward curve. *Colour*—silvery, having a gloss of gold and tinge of purple; no black

spots; 4 to 9 black bands descending from the back to the middle of the body. Some may stop at the lateral line. In some individuals the bands may not be seen from the outside, though the pigment is present. In very young individuals (less than two inches long) the sides are uniformly violet or gray.

The intestine is shorter than that of the last and does not contain the two characteristic knots of the same. The air-bladder has about 15 much-branched lateral caeca forming a triangular ridge around it, and having pockets formed between the ribs for their lodgment. The liver-lobes and the spleen are thinner than those of the other.

Distribution.—From the West and East Coasts of Africa through the Red Sea, seas of India to Australia.

Summary.

1. Cuv. and Val. had combined the old six species of the previous naturalists into two: *D. punctata* and *D. longimana*; and had noted a few anatomical differences between the two.

2. Bleeker reduced them all to one species viz., *D. punctata* and described more varieties.

3. Günther added another variety. Both Günther and Day supported Bleeker's view.

4. The writer records that the spotted and plain Drepanes show many morphological and anatomical differences requiring the splitting of the genus at least into two species as done by Cuv. and Val. He surmises that all the other forms described by Russel, Bleeker, and Günther are only variants of the plain *Drepane*.

5. The number of dorsal spines in the spotted is 9 and in the plain type only 8.

6. The lat. line forms a low symmetrical arch in the spotted and a strong upward curve in the plain type.

7. The spotted species has 4 to 11 rows of black spots formed by epidermal pigment. They are absent in the plain type.

8. In both the Drepanes 4 to 9 gray bands are seen. They are formed by hypodermal pigment.

9. The average length of the spotted has been found to be 7" and of the plain type 6 inches.

10. The number of males in the spotted type by far exceeds the number of females, while the females by far outnumber the males in the plain type.

11. The lengths of intestines of the spotted and the plain types are in the ratio of 6 to 5. The intestine of the spotted is twisted in two knots besides the loops common to both. The spotted has two caeca and the plain type has three.

12. The liver-lobes, the spleen, and the gall-bladder of the two show marked differences in their thickness and outline.

13. The air-bladders of the two differ in size, and also in the number and the growth of the lateral caeca.

14. The two species are re-described.

The work was carried under the guidance and supervision of Prof. P. R. Awati, to whom I am much obliged for the interest he has taken in this paper. My best thanks are due to the authorities of the Royal Institute of Science, Bombay, for enabling me to go to Calcutta, and to work at the Indian Museum. I am also much obliged to Dr. S. L. Hora of the Indian Museum for his courtesy in placing at my disposal the material at the museum.

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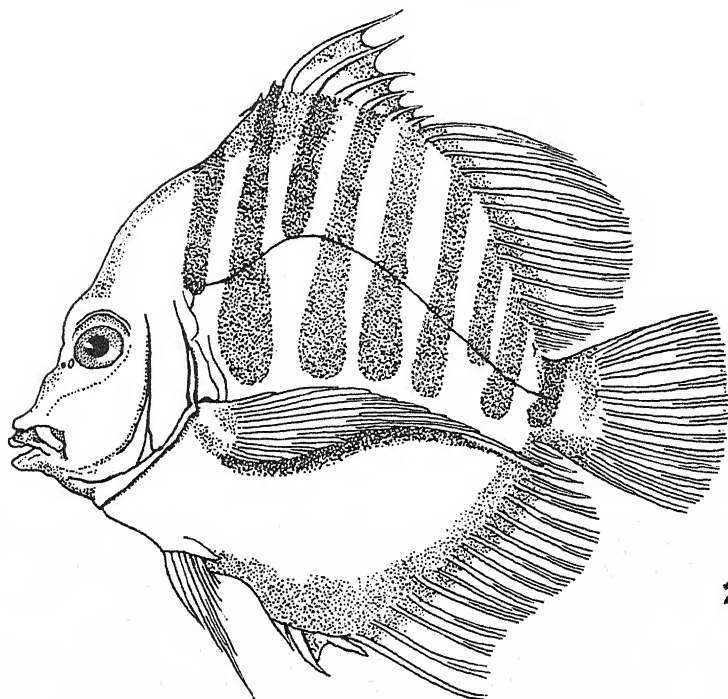
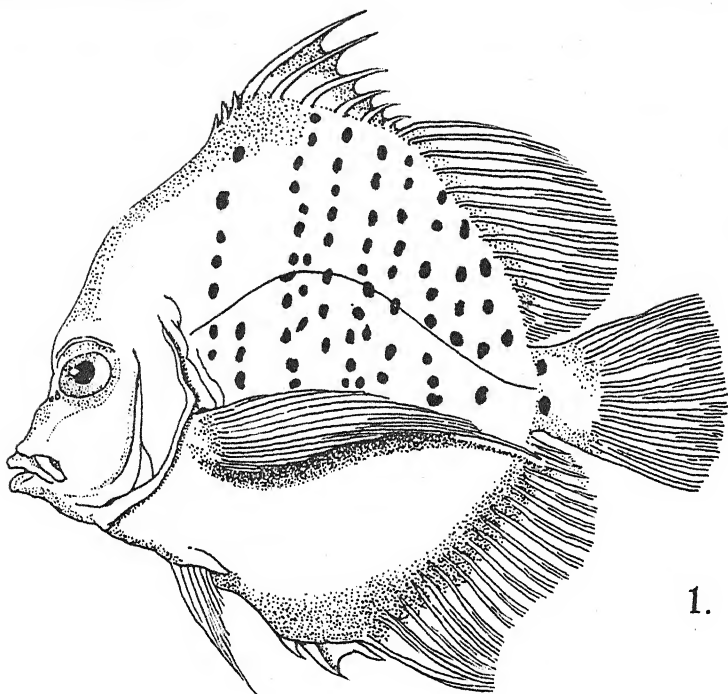
1. 1788. Linneus and Gmelin, *A Systema Naturae*, ed. XIII, p. 1243.
2. 1803. Russel P., *Two Hundred Fishes from Vizagapattam*, pp. 62, 63.
3. 1831. Cuvier and Valenciennes, *Histoire Naturelle des Poissons*, Vol. VII, pp. 129-136.
4. 1850. Bleeker P., *Bijdrage tot de kennis der Choetodontoiden van den Soenda-Molukschen Archipel*, *Verh. Bat. Gen.* XXIII, p. 23.
5. 1860. Günther A., *Catalogue of Fishes in the British Museum (Natural History)* II, p. 62.
6. 1869. Cope, *Transactions of the American Philosophical Society*, XIII, p. 401.
7. 1876. Day F., *The Fishes of India*, p. 116.
8. 1889. Day F., *The Fauna of British India. Fishes*, Vol. II, p. 21.
9. 1892. Osorio, *Jornal de Sciencias Mathematicus Physicus e Naturaes*, II series, Vol. II, p. 207.
10. 1905. Pellegrin J., *Mission des Pecheries de la cote occidentale d'Afrique Poissons Act. Soc. Linn. de Bordeaux*, Vol. LX.
11. 1910. Boulenger G. A., *The Cambridge Natural History*, Vol. VII, p. 668.
12. 1914. Pellegrin J., *Annales de L'institut Oceanographique*, tome VI, fascicule 4, p. 58.
13. 1924. Hefford A. E., *Report of the work of the trawler "William Carrick" by the Marine Biologist to the Government of Bombay*, p. 25.

EXPLANATION OF PLATE.

FISHES OF THE GENUS *Drepane*.

Fig. 1. *Drepane punctata* (Linn.). Seen from the left side.

Fig. 2. *Drepane longimana* (Bl.). Seen from the left side.



Fishes of the genus *Drepane*.

Further Notes on the India Diplopterous Wasps.

By CEDRIC DOVER.

(Communicated by Dr. Baini Prashad.)

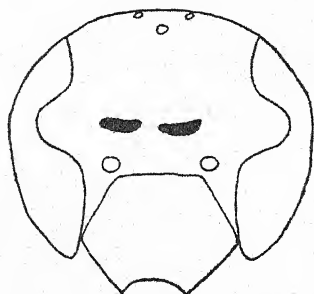
Three years ago Mr. H. Srinivasa Rao and I published in this Journal (Vol. XVIII, No. 4) some notes on the Indian diplopterous wasps which were based on the collection of the Zoological Survey of India. Since then I have been enabled through the kindness of Dr. J. Waterston, to work on the Vespidae in the British Museum, and in the notes that follow, I have attempted to settle the systematic position of various Indian forms, while describing also certain forms which appear to me to be new. I have included records of known species new to the Indian region, but have excluded all information of a purely distributional nature, as this can be published when a more suitable opportunity offers.

VESPIDÆ.

MASARIDINÆ.

Celonites nursei sp. nov. (fig. 1).

Female: head, thorax and abdomen closely, and inclined to be coarsely, pitted; clypeus convex, broader than long, anterior margin emarginate, posterior margin transverse; man-

Text-fig. 1. Face of *Celonites nursei* Dover.

dibles black at base, ferrugineous at apex; first two joints of antennæ black, joints three to seven brownish, three about as long as four and five together, joints eight to twelve ("club")

about as long as two to seven together, brownish on the outside, light ochraceous-brown on the underside; two small, elongate, transverse, yellow markings on the face a little above the clypeus; margins of pronotum adjacent to the mesonotum yellow, sides with a yellow spot; scutellum with two, lateral, yellow markings widely separated from each other; postero-lateral angles of median segment yellowish-white; apices of abdominal segments above with a yellowish-white band on which the pits are very conspicuous, giving it a net like appearance; basal three-fourths of abdominal segments two to four not so clearly pitted, having a slight granular appearance; posterior margin of fifth abdominal segment shining and almost impunctate, medially with a few scattered pits and a broad band of very close fine pubescence; coxae, trochanters, and femora (except at apex) of all legs blackish-brown, tibiae and tarsi yellow, with short white pubescence at sides; wings iridescent hyaline with a distinct fuscous tinge, especially towards apical margins; tegulae yellow. Length: 7-8 mm.

Habitat: Quetta (*C. G. Nurse*, May, 1904).

Holotype: In British Museum (Natural History).

This species differs markedly from its Palæarctic allies *C. abbreviatus* Villiers and *C. fischeri* Spin. in the nature of the markings and puncturation of the abdominal segments, and in the two spots on the scutellum. I am also unable to identify it with *C. osseus* Mor. from Transcaspia (known to me from description only), though *C. nursei* is undoubtedly very close to this species. The face of *C. osseus* is said to be finely punctured and to have a W-shaped mark.

The only other Masarid known from India is *Quartinia indica* Cam., but it must be remembered that these two records do not constitute an addition to the fauna of the Oriental Region as Quetta and Deesa belong more properly to the Palæarctic region. *Q. indica* is labelled *Q. maculifrons* in the British Museum, Cameron apparently having changed the name in his paper (*Zeits. Hym. Dipt.*, IV, p. 89, 1904) and omitted to change the label on his types.

ZETHINAE.

Calligaster dolosus Bingh.

1897. *Zethus dolosus* Bingh., Faun. Brit. Ind. Hym., I, p. 333.

Represented in the British Museum from Shillong; Haundraw valley; Tavoy. I think *Calligaster* may be regarded as sufficiently distinct from typical *Zethus* to deserve generic separation. The latter genus will then have to be excluded from the Indian fauna as all the species from our limits described under it, with the exception of *Z. interstitialis* Cam. which belongs to *Labus*, belong to *Calligaster*. The species described

by Meade-Waldo as *Calligaster turneri* appears to be a *Discoelius*.

Labus exigua Sauss.

1854. *Eumenes exigua* Sauss., Mon. Guep. Sol. Suppl., p. 150, Pl. VIII, f. 4, 4a, Pl. 1, f. 2.

1867. *Labus humbertianus* Sauss., Novara Reise, Zool., II. Hym., p. 4.

I have carefully compared specimens identified by Bingham as *Eumenes exigua* with specimens of *Labus humbertianus*, and after a consideration of the descriptions and figures of the two species, I am convinced that they are the same. H. de Saussure himself recognised the peculiarities of his *exigua* for he remarks: "La très basse insertion des antennes de cette espèce et la figure de son chaperon forment une exception très embarrassante à ce qu'on remarque chez les autres Eumeniens." Meade-Waldo's *L. punctatus* is very similar to this species, but the puncturation is somewhat different. It is based on an unique type. The British Museum has examples of *L. exigua* from the Ataran valley; Thaungyin valley; Bandra; Deesa; Abu; Wellawaya; Kandy; Yala; Hongkong; Penang.

EUMENINÆ.

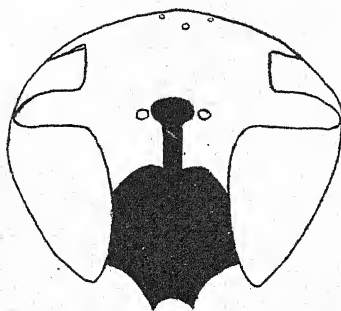
Eumenes coarctatus Linn. (fig. 2).

1884. *Eumenes coarctatus* Linn., André, Spec. Hym. Eur., II, p. 644.

(1) 1903. *Eumenes placens* Nurse, Ann. Mag. Nat. Hist. (7), XI, p. 530, ♀.

(2) 1897. *Eumenes punctata* Sauss., Bingham, tom. cit., p. 339.

This species must be included in the Indian list as it has been taken by Lt.-Col. F. W. Thomson in Gulmarg, Kashmir.



Text-fig. 2. Face of *Eumenes coarctatus* Linn., ♀.

I have followed general opinion in keeping *E. pomiformis* distinct from *coarctatus*, but the two forms and their varieties de-

serve a more detailed study than I can at present devote to them. I regard *placens* as a variety of *E. coarctatus*. I have determined two males of this form which may be briefly characterised as follows: Joints nine to eleven of antennæ fuscous on upperside; yellow on median segment emarginated just above the middle, somewhat like the third reduction stage in *E. arcuata*; marking on scutellum divided down centre to form two square adherent markings. Length: 15 mm.

I believe *E. punctata* Sauss. to be the Oriental race of *E. coarctatus*. Bingham's record "Tenasserim; Burma" for *punctata* may be erroneous as the only Indian examples in the British Museum are from Kumaon.

***Eumenes pomiformis* Fabr. (fig. 3).**

1884. *Eumenes pomiformis* Fabr., André, tom. cit., p. 642.

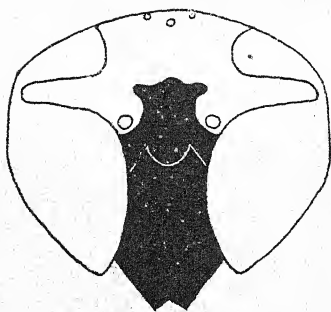
1898. *Eumenes antennata* Bingham, Journ. Bomb. Nat. Hist. Soc., XII, p. 121.

1908. *Eumenes affinissima* race *quettaensis* Cam., Journ. Bomb. Nat. Hist. Soc., XVIII, p. 132.

1910. *Labus superbus* Meade-Waldo, Ann. Mag. Nat. Hist. (8), V, p. 36, ♂.

(1) 1897. *Eumenes affinissima* Sauss., Bingham, tom. cit., p. 340.

In the British Museum there are examples of typical *pomiformis* from Quetta, Peshawar and Deesa. There can be no doubt that Dalla Torre and others are right in regarding *E. affinissima* a variety of *E. pomiformis*. I am not sure that



Text-fig. 3. Face of *Eumenes pomiformis* Fabr., ♂.

previous records for *affinissima* are correct as the only typical example I have seen in London is from Sikkim, 4,000 ft. I take the typical form to be characterised by its entirely black antennæ and the absence of the two lateral yellow spots on the middle of the petiole, of the two yellow markings on the

scutellum anteriorly and of the lateral yellow markings on the median segment.

It may savour of "splitting," but I think two other varieties of *E. pomiiformis* from India may be recognised here.

Variety *relatu* nov. Male and female like *affinissima*, but scape with reduced yellow marking; middle of petiole with two yellow spots; median segment above with a round yellow spot on each side and a narrow elongate stripe below this.

Habitat: Martaban and Ataran valley, Tenasserim.

Holotype and allotype in British Museum.

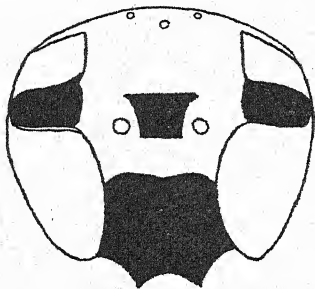
Variety *kangrae* nov. Male: differs from the *forma typica* in that the basal half of the upperside and entire underside of the petiole is red; flagellum of antennæ rufous at base and apex, black in the middle; scape more or less brownish above with slight black admixture, yellow marking on underside not very conspicuous; margins of pronotum adjacent to mesonotum with a yellowish-brown ridge; anterior scutellar spots generally wanting or greatly reduced; all legs almost entirely pale yellowish-brown, hind femora not black as in *pomiiformis*. In a general manner this variety is very like *placens* Nurse, but the males of that form are larger, the petiole is broader, the clypeus is somewhat more convex and the scutellum has two square markings. Nurse's insect appears to be the corresponding variety of *coarctatus* as *kangrae* is of *pomiiformis*.

Habitat: Kangra valley, Punjab (*G. C. Dudgeon*).

Holotype and five paratypes in British Museum.

***Eumenes comberi* sp. nov. (fig. 4).**

Female: a black and yellow insect very close to *E. pomiiformis*; head a little broader than thorax, distinctly broader



Text-fig. 4. Face of *Eumenes comberi* Dover.

than long, fairly closely but not coarsely pitted, the pits scattered and reduced on the clypeus; eye-incisions yellow; a ∇ shaped mark on the front just above the antennæ; clypeus

yellow; scape of antennæ yellow, but most of the outside occupied by a triangular black marking, flagellum brownish-black, three apical joints red; genæ with a long yellow stripe extending along the outer margins of the eyes; face with close pubescence which has a distinct silvery appearance on eye-incisions and clypeus; pronotum, mesonotum, scutellum and median segment pitted as in the head, the pronotum for the most part yellow, except at the angles near the tegulæ; scutellar markings as in *pomiformis*; median segment triangular, broadly grooved down the middle, sides with two more or less oval markings, apex with short silvery pubescence; markings of petiole and abdomen on upperside as in *pomiformis*, but the apical yellow band on the petiole differs conspicuously in that it is not notched in the middle; petiole slender, not half as enlarged towards apex as in typical *pomiformis*; almost entire length of petiole on underside with two long yellow stripes which occupy the entire apex and meet the apical band on the upperside; apical half of abdominal segments with shining silvery pubescence present on a lesser degree on basal halves and petiole; yellow marking on first ventral abdominal segment occupying its entire visible surface except the extreme basal area: legs yellow, intermediate and hind femora on outside black (except at apex); wings like *pomiformis*, two yellow markings on sides below them; tegulae yellow.

Length: about the same as *pomiformis*, approximately 10 mm.

Habitat: Karachi (*E. Comber*, November, 1909); Shapali, Bombay Presidency.

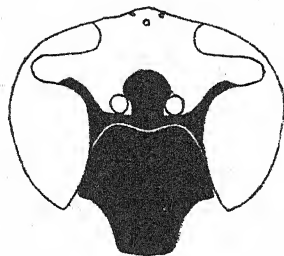
This species is very like *pomiformis*, but the structure and markings of the face, the puncturation, and shape of the petiole show it to be specifically distinct.

Eumenes arbustorum var. *baeri* Rad. (fig. 5).

1884. *Eumenes baeri* Rad., André, tom. cit., p. 628, Pl. 41, f. 13.
 1904. *Eumenes montana* Nurse, Journ. Bomb. Nat. Hist. Soc., XVI, p. 26, ♀.
 1910. *Katamenes watsoni* Meade-Waldo, Ann. Mag. Nat. Hist. (8), V, p. 46, ♂.

Practically the only difference between Nurse's species from Quetta and *baeri* is that in the former the longitudinal connecting line of black between the apical and basal markings on the first abdominal segment is absent, but in some examples of *baeri* which I have seen this is also the case. It is a little surprising that Mr. Meade-Waldo should have described a new genus and species on a single male from Peshawar, especially when material for comparison was readily available. His *Katamenes* has nothing to recommend it but an indefinable

"peculiar look," and I have compared males of *baeri* with his type and can find no differences of specific importance.



Text-fig. 5. Face of *Eumenes baeri* Rad., ♀.

Eumenes maxillosus de Geer.

1918. *Eumenes maxillosus* de Geer and vars., Bequaert, Bull. Amer. Mus. Nat. Hist., XXXIX, pp. 56-59, and pp. 279-281 (synonymy).

Typical *E. maxillosus* has not been recorded from India. Of the variety *circinalis* the only Indian examples in the British Museum are from the Pegu hills. Of the variety *xanthura* Sauss. (treated by Bingham as a species) I have seen many examples from Borneo and Sumatra, but none from India, and de Saussure's original record is "Les Indes-Orientales," not India, as stated by Bingham. I think we may safely assume that *xanthura* is a Malayan form and exclude it from the Indian list. Of the variety *petiolatus* Fabr. there are examples in the British Museum from Yunzalin valley; Haundraw valley; Khasi hills; and Rungeet valley. Of the variety *dimidiatipennis* Sauss. from Ferozepore; Deesa; Kashmir; 5-6000 ft.; Peshawar; Manora, Karachi; Bombay.

Eumenes caffer Linn.

1918. *Eumenes caffer* Linn. and vars., Bequaert, loc. cit., pp. 69-74 and p. 275 (synonymy).

Of this species two varieties are known from India: *esuriens* Fabr. and *gracilis* Sauss. Of the former Col. Nurse has taken examples at Ferozepore, Deesa, Abu and Quetta, and of the latter there are examples in the British Museum from Ye valley; Ataran valley; Haundraw valley; Tavoy; Pegu hills; Rangoon; Khasi hills; Kangra valley; Singapore; Takow and Suishako, Formosa. I am of opinion that Nurse's *E. viatrix* (A.M.N.H., 7 XI, p. 531, 1903) based on an unique male is just a casual aberration of the variety *gracilis*.

Eumenes lepeleterii Sauss.

1918. *Eumenes lepeleterii* Sauss., Bequaert, loc. cit., p. 74 and p. 276 (synonymy).

I have identified a single female from Colombo (*J. J. Walker*, Feb.-May, 1893), as typical *lepeleterii*. I do not think, however, that this species is indigenous in Ceylon, as in view of the heavy steamer traffic between Colombo and the East African ports, it is reasonable to suppose that the example I have seen was accidentally imported. The separation of this species from *E. caffer* is very difficult, but the characters mentioned by Bequaert and the figures given by him make it possible to do this with certainty. I take the opportunity of pointing out here that *E. formosus* Sauss. is apparently a synonym of this species and not of *E. caffer* as supposed by Bequaert.

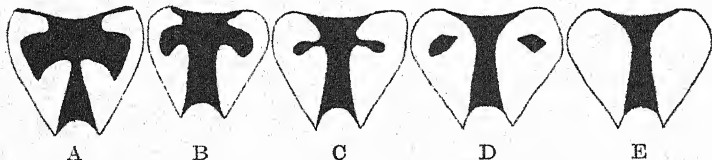
Eumenes arcuata Fabr. (Fig. 6).

1897. *Eumenes arcuata* Fabr., Bingham, tom. cit., p. 346, f. 99.

(1) 1899. *Eumenes flavopicta* Blanch., Bingham, tom. cit., p. 345.

(2) 1910. *Eumenes nicobarica* Meade-Waldo, Ann. Mag. Nat. Hist. (8), V, p. 42, ♂.

E. flavopicta agrees in all essential characters with typical *E. arcuata*, but usually differs in that the median segment is almost completely yellow, except for a longitudinal black area in the middle, while in *arcuata* the black on the median segment is in the form of a Maltese cross. A series of interme-



Text-fig. 6. Diagram illustrating stages in the variation of the markings of the median segment in *Eumenes arcuata* Fabr. The white areas are yellow.

A. Typical marking; B. first reduction stage of black marking; C. second reduction stage; D. third reduction stage; E. final stage (var. *flavopicta*).

diate stages, however, occurs between the two forms, and I have no doubt that they are specifically synonymous, though *flavopicta* may deserve to be treated as a distinct color-variety. I consider Mr. Meade-Waldo's insect from the Nicobars a race of *E. arcuata*. The occurrence of the variety *blanchardi* in India needs confirmation; I have only seen examples from Java.

Pareumenes quadrispinosa Sauss.

1897. *Eumenes quadrispinosa* Sauss., Bingham, tom. cit., p. 346, f. 92.

1860. *Eumenes eximius* Sm., Journ. Linn. Soc. Zool., IV, Suppl., p. 126, ♀.

Indian examples in the British Museum from Rungeet valley; Bhutan; Tavoy. The first four species described by Bingham in *Eumenes* will have to be transferred to *Pareumenes*.

Pareumenes rufopetiolata Wick.

1908. *Montezumia rufopetiolata* Wickwar, Spol. Zeyl., V, p. 120, f. 14, 15.

It is difficult to see the structure of the mandibles in the unique type of Wickwar's species as it is in very poor condition, but I think I am right in considering it a *Pareumenes*.

Nortonia campanulatus Wick.

1908. *Labus campanulatus* Wickwar, loc. cit., p. 121, figs. 10-13, ♀.

I have compared this and the following species with examples of *Nortonia* identified by Dr. Bequaert, and have studied his discussion of the genus (1918), and have no doubt that they belong to *Nortonia*, a genus not hitherto recorded from India.

Nortonia gujaratica Nurse.

1902. *Montezumia gujaratica* Nurse, Journ. Bomb. Nat. Hist. Soc., XIV, p. 90, ♀.

Very similar to the species above but distinct.

Odynerus (*Rygdium*) *argentatum* Fabr.

1897. *Rhynchium argentatum* Fabr., Bingham, tom. cit., p. 358.
1897. *Rhynchium metallicum* Sauss., Bingham, tom. cit., p. 358, f. 104.
1900. *Rhynchium clypeatum* Cam., Ann. Mag. Nat. Hist. (7), VI, p. 531.
1902. *Rhynchium maldivense* Cam., Faun. Maldives, I, p. 57.
(1) 1897. *Rhynchium bengalense* Sauss., Bingham, tom. cit., p. 359.

In British Museum from Haundraw valley; Rangoon; N. Khasi hills; N. Lakhimpur; Madras (city); Guzarat; Travancore; Calcutta; Deesa; Abu; Matheran; Jubbulpore. I follow Dalla Torre in regarding *bengalense* as a variety.

Odynerus (*R.*) *oculatum* var. *lefebvrei* Lep.

1852. *Rhynchium oculatum* var. *Lefebvrei* Lep., Sauss., Mon. Guep, Sol., p. 108.
1908. *Odynerus leviscutis* Cam., Journ. Bomb. Nat. Hist. Soc., XVIII, p. 307.

Cameron's specimens are from Bombay and Karachi.

Odynerus (R.) erythropus Bingham.

1897. *Rhynchium erythropus* Bingham, tom. cit., p. 353, ♀.
 (1) 1897. *Rhynchium molleri* Bingham, tom. cit. p. 354, Pl. II, f. 11, ♀.
 1900. *Rhynchium khasianum* Cam., Ann. Mag. Nat. Hist. (7), VI, p. 530.

Bingham's *molleri* agrees with *erythropus* in all structural particulars, but it may be convenient to regard it as a colour-variety. Cameron's *khasianum* is the same as *molleri*, except for the absence of red colour on the median segment, scutellum and mesonotum, and appears to be an intermediate between this variety and its species. In an example of *molleri* from the Rungeet valley the red on the mesonotum and scutellum is absent, and that on the post-scutellum and median segment is not very conspicuous. Bingham's types are from the Thaungyin valley, Tenasserim.

Odynerus (R.) haemorrhoidalis Fabr.

1897. *Rhynchium haemorrhoidale* Fabr., Bingham, tom. cit., p. 354.
 1918. *Odynerus haemorrhoidalis* Fabr., Bequaert, loc. cit., p. 300.
 (1) 1897. *Rhynchium atrum* Sauss., Bingham, tom. cit., p. 355.
 (2) 1798. *Vespa carnatica* Fabr., Syst. Ent., Suppl., p. 261.
 (3) 1787. *Vespa quinquecincta* Fabr., Mant. Ins., 1, p. 288.
 1897. *Rhynchium brunneum* Fabr., Bingham, tom. cit., p. 355, f. 103.
 (4) 1900. *Rhynchium rugolatum* Cam., Ann. Mag. Nat. Hist. (7), VII, p. 533.

Typical *haemorrhoidalis* does not appear to be very common in India, the only example that I have seen in the British Museum being from Tenasserim. I recognise four varieties of the typical form of which No. 3 is the commonest. Of *ater* I have seen an example from Moulmein and of *carnaticus* from Mandra; Allahabad; Bareilly; Nasik; and Kandy. The latter may represent a geographical race confined to Western and Southern India and Ceylon.

Odynerus guttatus Sm.

1897. *Odynerus guttatus* Sm., Bingham, tom. cit., p. 370.
 1897. *Odynerus diffinis* Sauss., Bingham, tom. cit., 366.

Indian Distribution: Calcutta; Barrackpore; Dhikala, Garhwal dist.; Bandra; Haundraw valley; Ataran valley; Yonzalin valley; Damdami valley; Senchal, 8,000 ft., Sikkim; Smith's type differs from that of de Saussure's only in that the latter is larger and has the first abdominal segment more clearly red at the base. *O. guttatus* is very close to *O. ovalis* Sauss.

Odynerus xanthozonus Cam.

1908. *Odynerus xanthozonus* Cam., Journ. Bomb. Nat. Hist. Soc., XVIII, p. 307.
 1909. *Odynerus fusciscutis* Cam., Journ. Bomb. Nat. Hist. Soc., XIX p. 137.

Known from Bombay and Simla. The specific name *foveiscutis* is a *lapsus* for *foveiscutis*, the name on Cameron's type.

***Odynerus punctum* Fabr.**

1897. *Odynerus punctum* Fabr. Bingham, tom. cit., p. 365, f. 107.
1889. *Odynerus orientalis* Dalla Torre, Wien Ent. Zeit., VIII, p. 125.
1852. *Ancistrocerus ornatus* Smith, Ann. Mag. Nat. Hist. (2), IX, p. 149.

Smith's type differs from *O. punctum* only in that the black marking on the base of the second abdominal segment is not so clearly rounded, but this is probably only a casual aberration.

***Odynerus miniatus* Sauss.**

1897. *Odynerus miniatus* Sauss., Bingham, tom. cit., p. 366.
1922. *Odynerus miniatus* Sauss., Dover and Rao, Journ. As. Soc. Beng. (n.s.), XVIII, p. 239.
1901. *Odynerus mephitis* Cam., Proc. Zool. Soc. Lond., p. 30.

In Cameron's species the first abdominal segment is darker at the apex, but I think, nevertheless, that it is the same as *miniatus*.

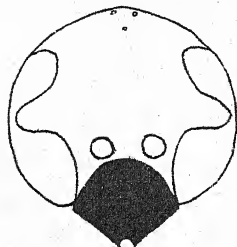
***Odynerus sichelii* Sauss.**

1897. *Odynerus sichelii* Sauss., Bingham, tom. cit., p. 363.
1897. *Odynerus intendens* Walk., Bingham, tom. cit., p.

The unique type of Walker's *intendens* is exactly the same as *sichelii* which has four years' priority. It is from Ceylon.

***Odynerus hina* sp. nov. (Fig. 7).**

Male: Black; head about as broad as long, gently rounded above, pitted, but not coarsely or closely; face with silvery



Text-fig. 7. Face of *Odynerus hina* Dover, ♂.

pubescence which extends conspicuously in a line from one eye-incision to the other; clypeus yellow, convex, a little broader than long, posterior margins and side semi-circular in outline to

a little before the anterior angle of the eyes, then straight, apex notched; scape of antennæ yellow, flagellum black, apical joints brownish on underside; mandibles red apically; thorax and abdomen above with a few round pits; pronotum with two, large, elongate yellow markings anteriorly; scutellum with an elongate yellow marking anteriorly; first abdominal segment considerably narrower than second, as in *O. minutus* Sauss., basal half black, impunctate, apical half yellow, pitted, apex with a narrow, shining, pale yellow ridge; second segment large, with fine pubescence, apex with a broadly emarginated yellow band; legs yellow, femora (except at apex) brownish-black; wings hyaline with purple and green iridescence; tegulæ yellow. Length: 4.5 mm.

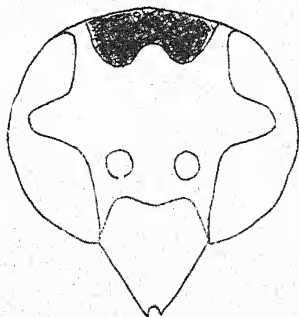
Female: Similar; clypeus black; pits more numerous; legs brownish, outside of tibiæ yellow. Length: 5.6 mm.

Holotype and allotype in British Museum.

Habitat: Peshin (*C. G. Nurse*, April, 1902); Quetta (*C. G. Nurse*, June, 1903).

Odynerus sculpturatus sp. nov. (Fig. 8).

Female: An entirely brownish-ochraceous insect of the general facies of *O. tripunctatus* Fabr. and *O. eatoni* Saund; head, thorax and first two abdominal segments closely, coarsely and deeply pitted, the elevations defining the pits tending to be confluent; vertex with a black W-shaped marking in the middle, which in some specimens is greatly reduced; clypeus



Text-fig. 8. Face of *Odynerus sculpturatus* Dover.

convex, posterior margin transverse, apex notched; space between antennæ raised; mandibles long and slender, slightly serrated in the middle, but not sharply or conspicuously, the teeth and inner margins black; antennæ covered with very short, fine, silvery pubescence; anterior margin of pronotum very slightly emarginate, sides almost parallel, antero-lateral

angles bluntly toothed; mesonotum with a short, broad, longitudinal carina anteriorly; scutellum and post-scutellum broadly excavated down the middle; median segment broader than long also deeply and broadly excavated down the middle, the elevated portions on the sides of the excavation more or less triangular; second abdominal segment convex, slightly broader than first, more or less square in outline, with two broad rather deep indentations towards the sides about the middle, which are usually black, apically with a shining transverse rim; wings fusco-hyaline with marked purple tints. Length: about 9 mm.

Habitat: Karachi (*E. Comber*, June–October, 1909).

Holotype and eight paratypes in British Museum.

STENOGASTRINAE.

Stenogaster fraterna Bingham.

1897. *Ischnogaster fraterna* Bingham, tom. cit., p. 378.

(1) 1897. *Ischnogaster scitula* Bingham, tom. cit., p. 379, ♀.

1922. *Stenogaster scitula* var. *assamensis* Dover and Rao, oc. cit., p. 240.

In the British Museum from Rungeet valley, 1,000 ft.; Margherita; Haundraw valley; Ataran valley; Salween valley; Bingham's *scitula* is merely a colour-variety of his own *fraterna*. The variety described by Mr. Rao and myself appears to be an intermediate form between *fraterna* and its variety, and though I have not our specimens before me I think it ought to be regarded as a synonym of *scitula*.

Stenogaster eximia Bingham.

1897. *Ischnogaster eximia* Bingham, tom. cit., p. 380.

1922. *Stenogaster eximioides* Dover and Rao, loc. cit., p. 242, ♀.

The examination of Bingham's original series in the British Museum shows that *S. eximioides*, though differing in the nature of the spots on the scutellum and the coloration of the petiole, is the same as *S. eximia*. Taking a broad view I do not think it necessary even to regard it as a colour-variety.

ROPALIDINAE.

Ropalidia artifex Sauss.

1897. *Icaria artifex* Sauss., Bingham, tom. cit., p. 389.

1853. *Icaria variegata* Sauss., nec. Smith, Mon. Guep. Soc., p. 25, Pl. IV, f. 3, ♀.

1860. *Polybia mathematica* Smith, Journ. Linn. Soc. Zool., IV, Suppl., p. 90, ♀.

1897. *Polybia stigma* Sm., Bingham, tom. cit., p. 384.

(1) 1900. *Icaria ruficollaris* Cam., Ann. Mag. Nat. Hist. (7), VI, p. 497.

I have studied the descriptions of Smith's *P. stigma* and *R. artifex* Sauss., and compared specimens identified by Smith,

Bingham and du Buysson and believe them to be synonymous. *R. variegata* Smith is quite a different species, though superficially rather similar. I think Cameron's *ruficollaris* (label on type "*ruficollis*") is a large colour-variety of *R. artifex*.

Ropalidia lugubris Sm.

1857. *Icaria lugubris* Smith, Journ. Linn. Soc. Zool., II, p. 115, ♀.
1922. *Ropalidia krishna* Dover and Rao, loc. cit., p. 246.

R. krishna was described from Calcutta as a new species because we did not think it necessary to compare it with an exclusively Bornean species. Though the collection of the species is attributed to me, I am now somewhat dubious of the authenticity of the record, as a wrong label may easily have been attached to it in the laboratory. In any case the species cannot be regarded as a part of the Indian fauna, as at most the specimen obtained must have been accidentally imported.

POLISTINAE.

Polistes orientalis Kirby.

1826. *Cyclostoma orientalis* Kirby, Introd Ent., iii, ed. 1a, p. 633, ♀.
1853. *Polistes* (*Gyrostoma*) *gyrostoma* Sauss., Mon. Guep. Soc., p. 104.
1836. *Polistes orientalis* Lepel., Hist. Nat. Ins. Hym., i, p. 519, ♂.
1852. *Polistes confusus* Smith, Cat. Hym. Brit. Mus., v, p. 102.
1897. *Polistes schach* Fabr., Bingham, *nc.* Fabr., tom. cit., p. 394.

I have examined the type of *P. schach* Fabr., and a large series of this species. It is an Australian form undoubtedly distinct from the form described under this name by Bingham which is the same as *P. confusus* Smith. Dalla Torre regards *confusus* = *orientalis* Lep. as distinct from *orientalis* Kirby = *gyrostoma* Sauss., but as far I can judge from the descriptions of these insects they appear to be same, and I have followed Bingham in regarding them as such. I have not, however, been able to find the types of these forms, which, with the exception of *orientalis* Lep., are supposed to be in the British Museum, and it is not possible to express a definite opinion without reference to them. For the present the species will have to be known as *P. orientalis* Kirby. It has been confused with *sulcatus* Sm., the specimen recorded by Bingham from Sikkim being that species, and I do not know if Mr. Rao and I have similarly confused the two species.

Polistes sulcatus Sm.

1897. *Polistes sulcatus* Sm., Bingham, tom. cit., p. 395.
1900. *Polistes rugifrons* Cam., Ann. Mag. Nat. Hist. (7), vii, p. 412.
1905. *Polistes javanicus* Cam., Tijds. Ent., xlviii, p. 68.
1911. *Polistes philippinensis* Sauss. (wrong spelling), Meade-Waldo, *ex parte*, Ann. Mag. Nat. Hist. (8), vii, p. 102.

In the British Museum from Darjeeling; Kalimpong; Rungeet valley; *P. rugifrons* Cam. from the Khasi hills is not

a synonym of *philippinensis* as Meade-Waldo supposed (both names wrongly spelt in the synonymy given by him), but of *sulcatus*. *P. philippinensis* is a black species with black clypeus finely punctate and with a few scattered pits, while *P. sulcatus* has a red clypeus rather densely pitted and not finely punctate, and the puncturation on the vertex is also different. Cameron's *rufolineata* is very similar to *sulcatus*, but the puncturation on the mesonotum is quite different.

Polistes hebraeus Fabr.

1787. *Vespa hebraea* Fabr., Mant.Ins., i, p. 292.
 1897. *Polistes hebraeus* Fabr., Bingham, tom.cit., p. 398 (ex parte).
 1921. *Polistes hebraeus* Fabr., Morice, Journ. Bomb. Nat. Hist. Soc. xxviii, p. 193.
 1793. *Vespa macaensis* Fabr., Ent.Syst., ii, p. 259.
 1918. *Polistes macaensis* Fabr., Bequaert, loc.cit., p. 346.
 1900. *Polistes watti* Cam., Ann. Mag. Nat. Hist. (7), vi, p. 416.

With Bingham and others Morice is of opinion that *hebraeus* and *macaensis* are the same insect, but I follow Perkins (cf. Bequaert, l.c.) in regarding them as distinct, though not specifically. The dark form I take to be typical *hebraeus*, of which I have seen very few Indian examples, and the light form is *macaensis* of which I have seen the type in the Banks collection. I believe most previous Indian records under the name *hebraeus* refer to the form *macaensis*, but in the British Museum there are some examples of the typical form from Sadiya (Assam) and the Rungeet valley (Sikkim). *P. watti* Cam. from Bengal (not Japan) is simply a somewhat darker specimen than usual of *macaensis*.

Polistes adustus Bingh.

1897. *Polistes adustus* Bingham, to m. cit., p. 397. ♀.
 = *Polistes lepcha* Cam.?
 1922. *Polistes dawnae* Dover and Rao, loc.cit., p. 248.

In the British Museum from Tukvar, 4,000 ft. and Rungeet valley (Sikkim); Shillong; Khasi hills; Sinling, Prov. Sen-Se; Shanghai. The description of *P. dawnae* applies very well to the type of Saussure's *sordidus* (? M. S. only) from Shanghai, which differs from *adustus* only in the presence of two yellow spots on the median segment. I think *dawnae* should be regarded as a synonym of *P. adustus*, but I have not the type with me and it may be a variety. *P. lepcha* I regard as a colour-variety of *adustus*.

Polistes gallicus Linn.

1884. *Polistes gallica* Linn., Andre, tom.cit., p. 606, pl., 39, f. 10.
 1897. *Polistes gallica* Linn., Dalla Torre, Cat. Hym. Vespidae, ix, p. 128.

Col. Nurse has taken this species at Kashmir, 5-6,000 ft.

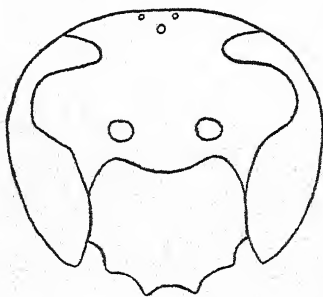
Vespa silvestris Scop.

1904. *Vespa silvestris* Scop., du Buysson, Ann. Soc. Ent. France, lxxiii, p. 690.

Taken by Col. Nurse at Kashmir, 8-9,000 ft.

Vespa minuta sp. nov. (Fig. 9).

Female or worker: Head brownish ochraceous, vertex dark-brown, except at margins of eyes; genae with short golden pubescence and sparsely clothed with long, erect, black hairs; occiput and vertex with similar hairs which are most dense on the vertex and on the eye-incisions; clypeus convex, posterior margin emarginate, with golden hairs short posteriorly, long anteriorly, sides with a row of black hairs, the hairs arising from very fine punctures; mandibles yellow, tridentate, with a few golden hairs in the middle and at apex, base with long black hairs; eyes black; antennae uniformly ochraceous-brown, scape with short golden pubescence; pronotum with long, black hairs on sides, margins adjacent to mesono-



Text-fig. 9. Face of *Vespa minuta* Dover.

tum yellow; mesonotum, scutellum, median segment and base of first abdominal segment with numerous long black hairs; surface of mesonotum coarse, very finely granular between the punctures, anteriorly with a broad black carina, anterior half reddish, basal half black, the reddish area being roughly diamond-shaped; anterior three-fourths of scutellum yellow, basal fourth black, the yellow broadly notched with black in the middle; post-scutellum triangular, marked more or less as the scutellum; median segment roughly cardiform, its lower margin deeply emarginate, sides with two elongate yellow markings; first three abdominal segments mostly brownish-black, except for a narrow yellow band posteriorly, which is distinctly rounded anteriorly on the third segment; visible

area of succeeding segments brownish; first two ventral segments browner in color, with a narrow, perfectly transverse yellow band posteriorly; abdomen very finely granulated and longitudinally striate, but having a smooth general appearance; posterior yellow bands with close golden pubescence, sides and apex with fairly long golden hairs slightly mixed with black, the hairs much shorter than those on the basal segment; first pair of legs uniformly ochraceous, tarsi only of second and third pairs ochraceous, remaining joints dark brown with close silvery and golden pubescence and some longer hairs; wings flavo-hyaline with purple and green iridescence, nervures brown; tegulae yellow; a triangular ochraceous marking on the sides below the wings. Length: about 13 mm.

Habitat: Tenasserim (exact locality not stated).

Holotype and three paratypes in British Museum.

The coloration and small size of this species makes it so distinct from the other species of the genus as to make a comparison unnecessary.

Root-sucking Aphids of Coimbatore.

By C. J. GEORGE, M.A.

The relation between ants and aphids is one of the most interesting phenomena in animal life. This association attains its perfection in the subterranean aphids. For the sake of the honey-dew which they readily yield under the influence of the ants, these aphids are afforded all facilities for food and shelter. First of all the ants excavate a cavity around the roots of the host plants, so that the aphids obtain for infestation cleared portions of the roots in an airy subterranean chamber. After preparing these chambers they carry the aphids to the roots themselves, or the winged forms come of their own accord. If these aphids are buried by rain or some such accident, the ants rescue them. It is very probable that the ants were responsible for inducing these aphids to desert their original shoot-sucking habit, and to take to a subterranean root-sucking mode of life. At Coimbatore there are representatives of the following genera from roots: *Tetraneura*, *Forda*, *Geoica*, and *Rhopalosiphum*, of which the first three are new to India.

Tetraneura ulmi De Geer.

Syn. *T. javensis* Van Der Goot.

T. yesoensis Matsumura.

This insect was noted at Coimbatore years ago, but the identity was not known (*vide* Fletcher, Some South Indian Insects, p. 502).

Apterous viviparous female.—Shape almost spherical, but flattened on the ventral side. Colour yellowish pink. Patches of waxy material found on the head, thorax, and sides, of the abdomen. The body hairy almost throughout. Segmentation feebly marked. Abdomen does not show any sign of segmentation dorsally. Eyes reduced to two shining spots. Antennae usually five, and occasionally six jointed. Cornicles mere elevated rings. Cauda round with a few long bristles.

The nymphs are elongated, red coloured creatures much more active than the apterous viviparous forms.

Alate viviparous female.—Body elongated, colour dirty black, segmentation clear, antennae six jointed with annular sensoria almost completely encircling the segments. Eyes well developed. In the forewings media 1 simple and in the hind wings only one transverse vein.

Habits.—It breeds parthenogenetically throughout the year.

Sexual forms have not been observed so far. The apterous form is very prolific, and brings forth in captivity 4 to 6 young ones in 24 hours. Food plants noted so far are *Eleusine coracana*, *Andropogon sorghum*, *Panicum colonum*, *Panicum javanicum*, *Panicum miliaceum*, *Setaria italica*, and *Oryza sativa*. The favourite normal food plant is *Panicum colonum*. The black ant *Camponotus compressus* and the red ant *Solenopsis geminata* have been noted attending on this, but only the red ant was noted carrying the apterous forms from plant to plant. In cold countries this species is found normally in galls on *Ulmus* species, transferring itself to the roots in the Spring. On account of the enormous numbers found on the roots, there is no doubt it does considerable damage to *sorghum* and *ragi*.

Tetraneura sp.

This resembles *Tetraneura ulmi* to a great extent, but is easily distinguished by the general white colour, the dark appendages and the more abundant wax secretion in the apterous viviparous form, and by the five jointed antennæ with quite a different number of the sensoria in the alate viviparous form. This attacks only sugarcane roots. The black ant does not seem to have any fascination for this species, the red ant alone being attendant on it.

Geoica sp.

Apterous viviparous female.—Shape almost spherical but flattened on the ventral side. It is much bigger and lighter in colour than *T. ulmi*. Wax secretion present. Eyes of three facets. Antennæ five jointed. Segmentation feebly marked. Body, including antennæ, legs, and cauda, sparsely hairy. Antennæ and legs dark in colour. Cornicles absent. Cauda round.

Alate viviparous female.—Head with a distinct median line of division. Body elongated. Colour dark. Eyes well developed. Antennæ six jointed. In the forewings media 1 simple. Media 2 and cubitus have a common short trunk. Hind wings with two transverse veins.

Habits.—This was collected only from *sorghum* roots. It occurs from November to January at Coimbatore. Winged forms are very common. It is attended by the black ant. This does not occur in large numbers.

Forda sp.

This species resembles in appearance the *Geoica* species mentioned above, but could be easily distinguished by the bigger size, longer legs, slightly lighter colour, and the five jointed antennæ in the alate form.

Life-history and habits.—Some difficulty was experienced in noting the life-history as the young ones die in large numbers in captivity. The apterous viviparous females were made to bring forth young ones on a piece of *cholam* root, inside a glass jar enclosed in a cardboard cover intended for shutting out light. The jar was always kept moist. Two or three ants were also let in. The highest mortality generally occurs after the third moult.

The just-hatched young.—The young one is born enclosed in a thin transparent membrane which soon breaks and liberates it. When born it is red in colour. Abdomen shows 6 segments. The rostrum is very long extending to the fifth abdominal segment.

The 2nd instar.—The first moult takes place two days after hatching. The rostrum now extends only to the middle of the third abdominal segment. The colour changes from red to slightly yellowish red.

3rd instar.—The second moult takes place two days after the first. The rostrum now extends to the end of second abdominal segment. The colour has become almost light yellow.

4th instar.—The third moult takes place two to three days after the second. Now the rostrum extends to the end of the first abdominal segment only. Body has taken a definite globular shape. Colour remains yellowish white.

5th instar.—The fourth moult is two days after the third. Rostrum now extends to the end of the third thoracic segment.

This insect occurs only in the black cotton soils on the roots of *Andropogon sorghum* and mostly on plants nearer the bunds. It is found in some numbers from October to January. The winged forms are very rare. The pupae are greenish yellow in colour with two yellowish-white wing pads. The presence of ant nests on the bunds explains the presence of these aphids in large numbers on plants near them. Very probably the black ants keep them in their nests when there is no *sorghum*. If an infested plant is pulled out and aphids scattered on the ground, the ants readily take them back to the roots. The red ant was not observed attending on this aphid.

Rhopalosiphum avenae (Fab).

- Syn. *Aphis avenae* Fabricius.
Siphocoryne avenae Pergande.
Aphis padi Kaltenbach.
Siphonaphis padi Van Der Goot.
Aphis africana Theobald.
Aphis prunifoliae Baker.
Aphis annuae Oestlund.
Rhopalosiphum prunifoliae Baker and Turner.
Toxoptera rufiabdominalis Sasaki.

Yamataphis oryzae Matsumura.

Y. papaveris Takahashi.

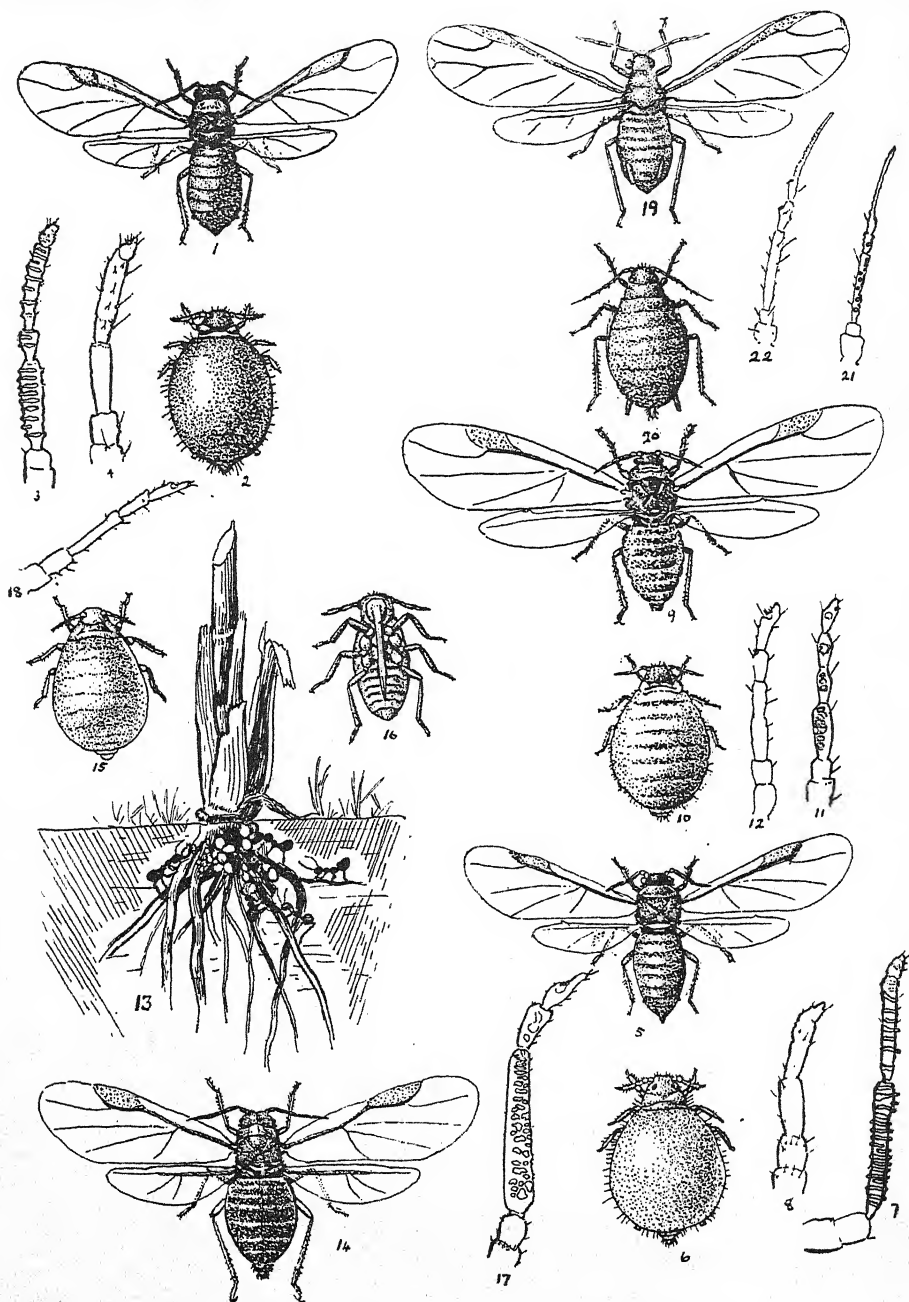
Rhopalosiphum papaveris Takahashi.

This is normally a shoot infesting species, but occasionally takes to roots. On account of the antennal variation, and the variation in habitat, it has been named differently by many authors. At Coimbatore it occurs occasionally on *Eleusine coracana* and *Panicum colonum* roots, from September to November. The antennae are five or six jointed. In the forewings the second fork of the media is very short and situated near the border of the wing, and so is sometimes missed in balsam mounts. The colour is dark green, with two light red areas near the cornicles in the apterous form. The alate form is a little darker. The cornicles are somewhat swollen in the middle.

Natural enemies.

The only enemy noted so far of these species of aphids is the larva of a Syrphid fly which voraciously sucks the individuals dry.

Before concluding this paper, I wish to express my indebtedness to M. R. Ry Rao Sahib Y. Ramachandra Rao for his valuable guidance, and Mr. Takahashi for kindly identifying the specimens.



Root-sucking Aphids of Coimbatore.

EXPLANATION OF PLATE.

Tetraneura ulmi De Geer.

1. Alate viviparous female.
2. Apterous viviparous female.
3. Antenna of the Alate viviparous female.
4. do. of the Apterous viviparous female.

Tetraneura sp.

5. Alate viviparous female.
6. Apterous viviparous female.
7. Antenna of the Alate viviparous female.
8. do. of the Apterous viviparous female.

Geoica sp.

9. Alate viviparous female.
10. Apterous viviparous female.
11. Antenna of the Alate viviparous female.
12. do. of the Apterous viviparous female.

Forda sp.

13. An *Andropogon sorghum* plant infested by the *Forda* sp.
14. Alate viviparous female.
15. Apterous viviparous female.
16. Ventral view of the just born young.
17. Antenna of the Alate viviparous female.
18. do. of the Apterous viviparous female.

Rhopalosiphum avenae (Fab).

19. Alate viviparous female.
 20. Apterous viviparous female.
 21. Antenna of the Alate viviparous female (5 segmented).
 22. do. of the Apterous viviparous female do.
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Orthoptera (except Blattidae) collected by Prof.
Gregory's expedition to Yunnan.

By B. P. UVAROV.

(With 8 text-figures.)

The collection of Orthoptera made by Prof. Gregory's expedition proved to be of exceptional interest, not so much because of a rather large percentage of new forms, as on account of certain zoogeographical conclusions which are suggested by it. Up till now, practically nothing whatever has been known about the Orthoptera of Yunnan, particularly of its mountain fauna, and the collection helps us to form an opinion as to what the fauna is like. Of course, it is still only a very small part of the fauna that has been made known to us by the expedition, and I would not think of attempting a full zoogeographic characterisation of the country based on it, but will merely indicate certain points of salient interest arising from the study of the collection.

It would be obviously impossible and useless to regard the whole of Yunnan as a single zoogeographical unit. In fact, there is a very profound difference between the mountain fauna and that of the valleys of Yunnan, the former being Palaearctic in its character, while the latter is truly Oriental.

The Palaearctic character of the alpine fauna of the inner Yunnan is very strikingly demonstrated by the apparently very important part which belongs in the composition of this fauna to the members of the group *Chorthippi*. In this respect especially noteworthy is *Stauroderus yunnaneus*, sp. nov., a member of a genus, which is widely distributed over the northern zone of the Palaearctic region, only just reaching its southern limits, and which undoubtedly originated in Palaearctic Asia, where it is represented by a large number of species. The new species, moreover, is very closely allied to the Siberian *St. aethalinus* Zub. and to the Japanese *St. latipennis* Bol., both of them restricted in their distribution to the south-eastern part of Palaearctic Asia. Another member of a truly Palaearctic genus is *Omocestus enitor*, sp. nov., but the genus, as understood at present, is by no means a natural one, while the new species has no very near allies amongst its species, which makes it dangerous to use it as evidence. On the contrary, the new genus *Xenoderus*, with its single species, *X. montanus*, sp. nov. is apparently very closely allied to *Gomphocerus*, which genus is also unquestionably of East

Asiatic origin. Similarly, *Sphingonotus yunnanensis*, sp. nov., although belonging to a genus flourishing at present in the most southern parts of the Palaearctic region (in its Eremian sub-region), exhibits certain characters isolating it from other species of the genus and, at the same time, indicating a relationship with *Bryodemus*, which is an essentially Mongolo-Siberian genus, and with *Callirhipis* known only from China.

All this evidence, I think, indicates quite convincingly that the alpine fauna of Yunnan not only forms a part of the Palaearctic fauna, but obviously belongs to that division of it, which must have originated in the Angara-continent of geologists, this latter being, probably, the cradle of the bulk of Palaearctic genera of Orthoptera. The Yunnan localities, whence representatives of this Angara-fauna are recorded in the present paper, are very valuable as indications of southern limits of distribution of this fauna in that part of Asia.

As regards the fauna of the more low-lying parts of Yunnan it is, as I said before, of a truly Oriental character. The general "subtropical" character of this fauna is exemplified by the presence of genera such as *Calantops*, *Gastrimargus*, *Aulacobothrus*, *Pternoscirta*, *Trilophidia*, *Tenodera* a.o., since the species of these genera are mostly Oriental ones, as are also genera like *Phlaeoba* or *Isopsera*. A very striking feature of the fauna is formed by the presence of two new genera *Mekongia* and *Yunnanites* which belong to the group *Sphenarii* of *Pyr-gomorphinae*, this group being known at present only by two Central-American genera, although one more undescribed genus is known to me from S.E. Africa. It is difficult to say, in the face of our insufficient knowledge of the fauna of the Pacific Islands, to what extent this fact supports Professor Gregory's idea of a former mid-Pacific land connection between South-Eastern Asia and Central America, but I thought it of sufficient interest to be briefly mentioned.

All the specimens on which this paper is based are placed in the British Museum collection. A few immature specimens remained unnamed and I do not think it of any use to include them in the list under queried names.

Family MANTIDAE.

1. *Mantis religiosa* (L.).

Near Nantao, 6400', 2. VII; 1 ♀.

Widely distributed in the Old World.

2. *Tenodera sinensis* Sauss.

1871. *Tenodera aridifolia* var. *sinensis*, Saussure, *Mém. Soc. Phys. Hist. Nat. Genève*, XXI, p. 295.

Near Nantao, 6400', 2. VII; 1 ♂.

The specimen before me is a male, while Saussure based his description on a female, but I cannot detect any difference from the description which might not be sexual. I doubt very much if Giglio-Tos understood the species correctly, since he included it in the section of the genus with a basal spot on the wings, while Saussure's original description is certainly based on a species without the spot; there is also no spot in the Yunnan specimen.

Family TETTIGONIDAE.

Subfamily PHANEROPTERINAE.

3. *Isopsera stylata*, Br. W.

Near Chi-tien, 7000', 3. VIII; 1 ♂.

The species has been described from Calcutta. The only specimen in the collection is in very bad condition.

4. *Phaneroptera roseata*, Walk.

Be-t'a, 7000', 21. VI; 2 ♀ ♀.

A widely distributed Oriental species ranging from Egypt to Himalayas, Borneo, Philippines, and even to N. Queensland. The synonymy of the species has been recently discussed by me (*Bull. Min. Agr. Egypt*, No. 41, 1924, p. 9).

Gregoryella, gen. nov.

A member of the group *Acrometopae*, but resembling the genus *Elimaea* in the shape of the male genitalia. *Antennae* thin, but not very flexible. Frontal *fastigium* low, conical, with an oval impression; antennal scrobae much higher than the fastigium, lamelliform. Fastigium of vertex broadly separated from the frontal fastigium, narrowly elliptical, impressed, in front lamelliform-compressed and obtusangulately projecting upwards. *Pronotum* laterally compressed; upper surface feebly convex in profile, widened and somewhat impressed behind; a **v**-shaped sulcus in the middle; lateral lobes longer than high, with the lower margin only feebly convex; hind margin with a very distinct humeral emargination. *Elytra* extending well beyond the hind knees in the male, and reaching them in the female, moderately broad, widened in the middle, with the apex rounded, very densely reticulated throughout except along the very coastal margin; radial veins separated near the apex only; hind radial with two branches, the first one furcate; transverse veinlets irregular. Wings in the male longer, in the female slightly shorter than elytra. Legs rather short for the group; front coxae unarmed; front femora feebly compressed, shallowly sulcate

and unarmed below; front tibiae above sulcate, bearing spinules on both edges; hind femora relatively short, narrow, unarmed below. *Prosternum* unarmed; mesosternal and metasternal lobes short, rounded, not covering foveolae. *Male* supra-anal plate large, with the apical angles attenuate sideways; cerci large, curved, pointed apically; subgenital plate deeply split, with the lobes recurved and their apices hidden under the supra-anal plate. *Female* subgenital plate triangular; ovipositor more than twice as long as pronotum, feebly recurved, strongly dentate near the apex.

5. *Gregoryella dimorpha*, sp. nov. (Figs. 1, 2.)

♂. Pale yellowish green (probably more or less green in life). *Antennae* blackish-castaneous with narrow, irregular pale rings. *Pronotum* with a reddish-brown fascia along the disc, prolonged also on elytra; lateral lobes with some reddish dots,

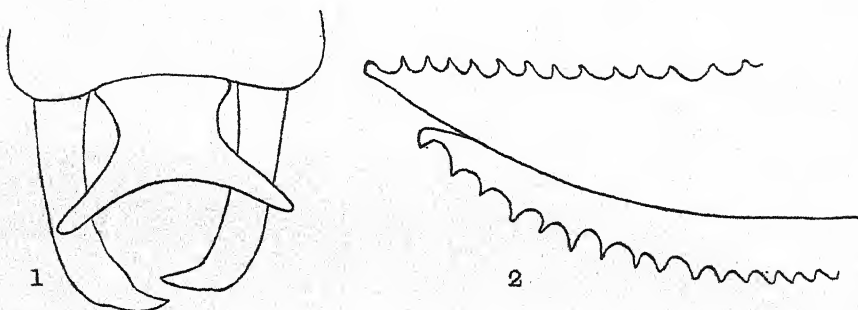


Fig. 1. *Gregoryella dimorpha*, gen. and sp. nov., end of abdomen of ♂.

Fig. 2. *Gregoryella dimorpha*, gen. and sp. nov., end of ovipositor of ♀.

and separated from the disc by a pale line. *Elytra* with the reticulation very dense, veinlets thick and pale, and the membrane-cells between them very small and blackish; first branch of the radial vein arises before the middle, bifurcate, both its secondary branches ending in the hind margin; second radial branch arises near the apex, irregular. *Legs* reddish. *Supra-anal plate* slightly longer than in the middle broad, nearly parallel sided; its apical margin somewhat raised, produced sideways in long, acute processes. *Cerci* moderately thick, broadly curved in the vertical plane, with the apices turned inwards, pointed, almost meeting each other behind the subgenital plate. *Subgenital plate* with the fissure almost reaching its base; the fissure is very narrow in its basal part, somewhat widened in the middle; the lobes broadly sulcate in the basal (horizontal) portion, strongly recurved in the middle, the recurved parts somewhat widened and shallowly sulcate before

the apex, which is divided in two spines sulcate inwardly (apices of cerci described from a paratype, since in the type they are concealed under supra-anal plate).

♀. The upper fascia of pronotum blackish, wider in the metazona; occiput blackish-red.

| | ♂ (type) | ♀ (paratype) |
|----------------------------|-----------|--------------|
| Length of body .. | 22 mm. .. | 24 mm. |
| " " pronotum .. | 5 .. | 5.5 |
| " " elytra .. | 31 .. | 23 |
| Maximum width of elytra .. | 6 .. | 6 |
| Length of wings .. | 36 .. | 21 |
| " " front femora .. | 9 .. | 8.5 |
| " " hind .. | 20.5 .. | 19 |
| " " ovipositor .. | | 13 |

The type has been taken near Cradza, 6600', 4. VIII; the only female paratype at Sekon-Jugeh River, 7300', 30. VII; two male paratypes are from Gad-ssu on the Yangtze-Kiang, 6600', 20. VI, and one more collected near Hokiang, S.W. of Tali Lake, 5300', 17. VIII.

The remarkable genitalia of the male are of the same type as in *Elimaea*, but the insect does not belong to the same group as the latter, owing to differences in the front femora, venation of elytra and length of ovipositor.

Family GRYLLIDAE.

Subfamily GRYLLINAE.

6. *Grylloides aspersus* (Walk.).

1869. *Gryllus aspersus*, Walker, *Cat. Derm. Salt. Brit. Mus.*, I, p. 39 (♀),
 1877. *Grylloides Berthellus*, Saussure, *Mém. Soc. Phys. Hist. Nat. Genève*,
 XXV, p. 205 (♀).
 1893. *Grylloides Berthellus*, Brunner v. Wattenwyl, *Ann. Mus. Genova*,
 XXXIII, p. 199 (♂).

Li-tien, 6800', 22. VI, 1 ♂.

Walker's type of *G. aspersus* is a female from Hongkong which agrees with Saussure's description of *G. Berthellus* based on the same sex. The male from Yunnan is obviously conspecific with the type, and it is certainly the same insect as described by Brunner. Kirby (*Syn. Cat. Orth.*, I, p. 29) synonymized *G. aspersus* with *chinensis* of Weber, but the description of the latter is absolutely useless—even the size of the insect not being indicated—and I find it impossible to use the name *chinensis* at all.¹ Apart from that, the insect before me differs from *chinensis* in the rudimentary wings—of course this

¹ It is being used by some authors for the Mediterranean *G. burdigalensis*, but without any reason except that Kirby adopted the synonymy in his catalogue.

may be only a case of brachypterism, but anyhow Walker's name must stand for the brachypterous form of the species known as *Gryllodes berthellus*.

7. *Gryllus mitratus*, Burm.

North of Wei-hei, 7,700', 7. VI, 2♂♂; Be-t-a, 7,000', 21. VI, 1♂, 5♀♀; Jueh River, 9,500', 29. VII, 1♀; Gad-ssu on the Yang-tse-kiang, 6,600', 20. VI, 1♀; near Nantao, 6,400', 2. VII, 1♀.

A common Indo-Malayan species.

8. *Liogryllus bimaculatus* (De Geer).

North of Chi-tien, 7,000', 7. VIII, 1♀.

Very widely distributed throughout the tropics and subtropics of the Old World.

9. *Liogryllus*, sp.

Near Shi-ku, 6,400', 7. VIII, 1♀.

A species distinctly smaller than *L. bimaculatus*, with five spines on both sides of the hind tibiae, and the inner upper spur slightly longer than the intermediate one. It seems to be rather near to *L. morio* (F.) from Africa, but not identical with it; I find it useless to describe a new species from a single female.

Family ACRIDIDAE.

Subfamily ACRIDINAE.

10. *Acrida exaltata* (Walk.).

Near Niu-kai, 7,300', 12. VIII, 1♂.

Very common in India and Burma.

11. *Phlaeoba infumata*, Br. W.

Feitung, 4,500', 29. V, 1♀.

Described from Burma and Tenasserim.

12. *Phlaeoba tenebrosa* (Walk.).

North of Wei-hsi, 6,000-7,700', 27. VI, 1♀.

Originally described from Yunnan. The species is easily recognisable by the very short (nearly transverse) and obtuse in front fastigium, and by the pronotum very strongly rugose, with the lateral keels very irregular, almost obliterate.

13. *Aulacobothrus sinensis*, sp. nov.

Differs from other known species of the genus by the straight lateral pronotal keels.

♀. *Antennae* rather thick, compressed, as long as head and pronotum together. *Head* thick; frontal ridge slightly convex and sparsely punctured above the ocellum, flat and densely punctured below it, very feebly and gradually dilated below; temporal foveolae distinct, but not deep, rugose at the bottom, longer than broad, with the angles rounded; fastigium of vertex slightly broader, than long, rectangulate in front, well impressed, with a slightly bowed transverse sulcus before the middle; median carinula of the vertex and occiput, as well as the lateral ones very feeble, the space between them transversely rugulose. *Pronotum* much less compressed laterally than in other species; its disc nearly flat, subrectiform, rugulose along the middle; median carina low, sharp; lateral carinae straight, gradually and feebly divergent from the front margin to the hind one; supplementary (intermediate) carinulae very feeble, more distinct in metazona: hind angle obtuse, rounded; lateral lobes distinctly higher than long, rugulose, obtusangulate below. *Elytra* reaching the hind knees; mediastinal area extending to the apical fourth, feebly widened near the base, with an incomplete false vein; scapular area reaching the apex, scarcely dilated, with a short, irregular false vein in the basal fourth; discoidal area rather broad (for the genus), with the false vein irregular; hind radial vein nearly straight, not strongly bent backwards in the apical half; interular area slightly narrower than the discoidal area, with the false vein very irregular, interrupted. *Valvae* of the *ovipositor* very short, obtuse.

Coloration brownish-testaceous: narrow castaneous lateral stripes run along the vertex and occiput, as well as along the sides of the pronotal disc where they are much broader, occupying the space between the supplementary and the lateral keels, the colour extending partly on the lateral lobes, as well. *Elytra* somewhat brownish in the discoidal field. *Wings* slightly infumate, with the veins brownish. *Hind femora* somewhat blackened along the upper half of the external median area; knees brownish. *Hind tibiae* reddish.

| | | |
|---------------------|----|-----------|
| | | ♀ (type). |
| Length of body .. | .. | 20 mm. |
| pronotum .. | .. | 4 |
| elytra .. | .. | 16 |
| hind femur .. | .. | 11 |

A single female taken W. of Yangtsien, 8,000', 8. VI.

The genus is represented by a number of species in India, more especially in the Himalayas.

14. *Omocestus enitor*, sp. nov. (Fig. 3).

A very distinct species resembling some short-winged species of *Stauroderus*.

♂. *Antennae* fully twice as long as head and pronotum together, somewhat flattened, especially near the base. Face strongly reclinate; frontal ridge in profile convex near the fastigium, sulcate from above the ocellum downwards. Fastigium of vertex prominent forward, distinctly longer than broad, with the margins sharp, apical angle acute and the surface scarcely impressed, horizontal; foveolae more than twice as long as broad, well impressed, with the margins sharp and the inner anterior angle rounded. *Pronotum* distinctly compressed laterally; its disc obtusely tectiform, seen in profile gibbulous; median carina well raised; lateral carinae feebly and roundly inflexed in the middle of prozona, somewhat obliterate in the hind portion of prozona, sharp and distinctly divergent in the metazona; sulcus in the middle, distinctly obtusely angulate forwards; hind margin obtusely angulate; lateral lobes somewhat deeper than long, slightly narrowed down-wards. *Elytra* reaching the middle of supra-anal plate; elongate-elliptical; mediastinal area nearly reaching the apex.

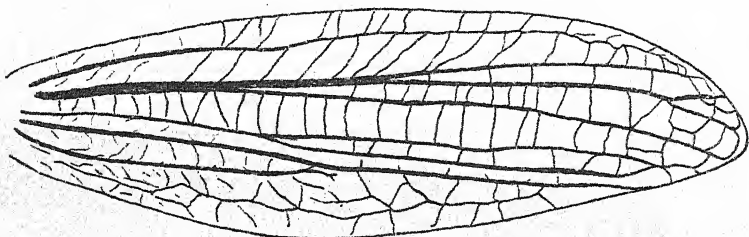


Fig. 3. *Omocetus enitor*, sp. nov. ♂.

with irregular reticulation; scapular area moderately dilated, with sparse, irregular oblique veinlets; first and second radial veins slightly incrassate, practically straight, reaching the anterior margin well before the apex; third radial separated from the second radial beyond the basal fourth, gradually and feebly bent backwards, reaching the hind margin just behind the apex; discoidal area open, slightly narrowed to the apex, with irregular sparse transverse veinlets; first ulnar vein fused with the second ulnar in the basal third, then narrowly separated from it and joining it again at the apex. *Wings* slightly longer than half of the elytra. *Subgenital plate* short, obtuse.

Coloration dirty brown. Pronotum with indefinite castaneous fasciae, outwards of the lateral keels in prozona, inside them in metazona. Elytra with the veins brownish. Abdomen reddish apically. Hind femora brownish externally, paler, with a narrow black longitudinal fascia in the basal third, internally; reddish below; knees black. Hind tibiae red, with the very base and apex brownish.

♀ (paratype). Antennae shorter than head and pronotum together, compressed. Frontal ridge not sulcate, dilated below. Fastigium of vertex transverse, with the apex obtuse. Lateral keels of pronotum not well developed in prozona, almost angulately inflexed; sulcus just before the middle. Elytra extending somewhat beyond the second tergite, narrowly elliptical, with the apex parabolic; hind radial vein ending in the apex of elytron. Wings a little longer than half of elytra. Valvae of ovipositor curved, but without teeth. Coloration paler than in the male.

| | ♂ | ♀ |
|---------------------|--------|--------|
| Length of body .. | 13 mm. | 21 mm. |
| pronotum .. | 3 .. | 3.5 |
| elytra .. | 7 .. | 5.5 |
| hind femur .. | 8 .. | 11 |

A male from Pei-ma-shan, 14,000', 23. VII and a female taken S.E. of Atuntzu, 12,000', 20. VII.

Although the two sexes were not taken together, I do not hesitate to refer them to one species, since the shape of pronotal keels, venation of elytra and the coloration are the same; an especially distinct, if unimportant, mark is to be seen in the characteristic narrow black streak along the inside of hind femora, at the base.

The species is so well characterised that I am unable to name its nearest relatives.

15. *Stauroderus yunnaneus*, sp. nov. (Fig. 4).

Related to *St. aethalinus*, Zub. and to *St. latipennis*, Bol; but well distinct from both in the venation of the elytra and some other characters.

♂. *Antennae* nearly twice as long as head and pronotum together, distinctly flattened. *Face* strongly sloping; frontal ridge slightly convex in profile, sulcate throughout, punctured. Foveolae of vertex strongly impressed, sharply margined, about three times as long as broad. Fastigium of vertex as broad as long, slightly impressed, with the margins sharp; the anterior angle slightly less than 90°. *Pronotum* with the sulcus placed in the middle; lateral keels roundly inflexed in the middle of the prozona, slightly divergent in front, and strongly backwards, of the inflexion; hind angle very obtuse, rounded. *Elytra* extending a little beyond the hind knees, moderately dilated; mediastinal area very feebly dilated, extending to the apex of the distal third of the elytron, without a false vein; scapular area distinctly dilated, with regular oblique veinlets; first radial vein practically straight; externo-median area gradually and not very strongly dilated towards the apex; second radial vein almost straight, very slightly bent backward, incrassate; hind radial vein deflexing from the second radial already near the base; discoidal area moderately broad, with

sparse, but not quite regular, reticulation; interulnar area distinctly narrower than the discoidal area, with sparse veinlets. Wings rather narrow, scarcely twice as broad as long. Hind femora slender, long. *Subgenital plate* obtuse, short.

Coloration dark-brown. Antennae brown basally, becoming gradually black towards the apex. Pronotum with velvety blackish-brown fasciae outside the lateral keels in the prozona and inside them in the metazona. Elytra distinctly, but not strongly infumate, with a longitudinal fascia in the discoidal field and a large, irregular spot in the apical third, of a darker shade. Wings infumate, except the base where they are nearly hyaline; anterior margin near the apex quite strongly infumate; hyaline rays along the principal veins reach the hind margin. Abdomen blackish basally, pale ochraceous apically. Hind femora reddish below; pale testaceous, with a blackish longitudinal streak near the base, inwardly; knees blackish. Hind tibiae reddish.

♀ (paratype). Antennae a little longer than head and pronotum together. Frontal ridge sulcate below the ocellum.

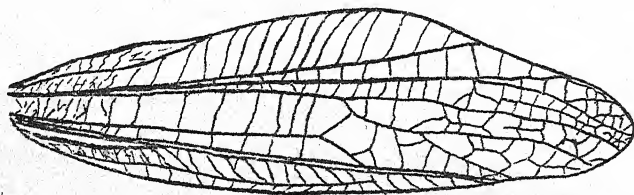


Fig. 4. *Stauroderus yunnanensis*, sp. nov. ♂.

Fastigium of vertex slightly transverse, with the apical angle 90°. Lateral keels of pronotum angulately inflexed in the middle of prozona; the sulcus placed before the middle. Elytra just reaching the hind knees; mediastinal area reaching the apical third; scapular area gradually, but distinctly dilated, with the veinlets sparse, oblique; first radial vein gently sinuate; externo-median area narrow; second radial vein slightly sinuate; discoidal area fairly broad, with sparse veinlets; interulnar area narrower than the discoidal. Valvae of the ovipositor thick, strongly curved, but not dentate. Coloration on the whole like that of the male; elytra scarcely infumate; wings slightly infumate in the apical half.

| | ♂ | ♀ |
|--------------------------|-----------|--------|
| Length of body .. | 16 mm. .. | 21 mm. |
| „ „ pronotum .. | 3 .. | 4 |
| „ „ elytra .. | 14 .. | 14 |
| „ „ wings .. | 13 .. | 14 |
| Maximum width of wings | 6 .. | 6.5 |
| Length of hind femora .. | 10.5 .. | 13 |

A male and a female taken W. of Yangtsien, 8,000', S. VI.

This handsome new species falls in the same section of the genus with *St. aethalinus*, Zub. from S. Siberia, and with *St. latipennis*, Bol. from Japan (and Korea), all these three species possessing the infumated elytra and wings. The venation of elytra, however, is in the new species more like that in *St. biguttulus*, L. than in the two above-named species; in fact, *St. yunnanensis* is in this respect intermediate between *St. biguttulus* and *St. aethalinus*. The shape of pronotal keels is in *St. yunnanensis* as in *biguttulus*, and is, probably, subject to the same variations. The new species is easily separated from *biguttulus* by the infumate elytra and wings, as well as by the venation of elytra. The discovery of a *Stauroderus* so far south-eastward, is extremely interesting, as this is one of the most characteristic genera of the Siberian group of Palaearctic fauna.

Xenoderus, gen. nov.

A member of the group *Chorthippi*, resembling the genus *Stauroderus*, but differing from it in the structure of pronotum and in the venation of elytra.

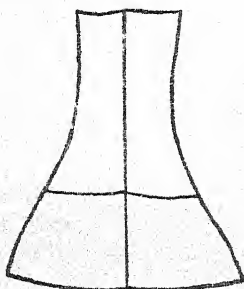
♀ Antennae filiform. Vertex triangular; foveolae narrow, impressed. Pronotum almost rounded, its lateral lobes being convex and scarcely forming an angle with the disc which is distinctly convex transversely in the prozona and feebly tectiform in metazona; lateral keels well developed, closely approximated and feebly inflexed in prozona, strongly divergent backwards; transverse sulcus placed well behind the middle; hind margin rounded-truncate; lateral lobes with the lower margin rounded, feebly ascendent anteriorly. Mesosternal lobes transverse; their interspace as broad as one of the lobes; metasternal lobes separated by a subquadrate interspace. Elytra abbreviated, lateral, broadly rounded apically; mediastinal field not expanded, reaching the apex. Valvae of the ovipositor without teeth.

16. *Xenoderus montanus*, sp. nov. (Figs. 5, 6).

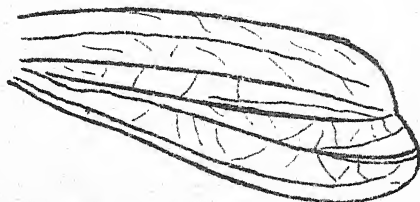
♀ Antennae slightly longer than head and pronotum together, distinctly flattened, but scarcely expanded basally, practically cylindrical apically. Face well reclinate; frontal ridge gradually widened and lowered towards the clypeus, sparsely punctured, slightly impressed just below the ocellum; lateral facial keels subobliterated. Fastigium of vertex about as broad as long, practically horizontal, scarcely impressed; its margins smooth, but not sharp; front angle about 90°, rounded; foveolae more than twice as long as broad, deep,

with the margins smooth, thick. Disc of *pronotum* smooth, but not shiny, in prozona, coarsely punctured in metazona; median keel well developed, smooth, not quite reaching the hind margin; lateral keels very broadly arched inwards, feebly divergent anteriorly and very strongly so, posteriorly; hind margin broadly rounded-truncate, slightly emarginate in the middle; lateral lobes practically smooth, rugosely punctured in metazona. *Elytra* extending just beyond the apex of the first tergite, widely separated at the back, widened towards the apex which is broadly rounded and slightly emarginate above the middle; veins straight, veinlets sparse and irregular. Hind *femora* moderately robust, gradually narrowed apically.

Coloration reddish-brown. Antennae dark-brown. Face mottled with blackish, with a pale oblique fascia occupying the space between the lateral facial keel and the subocular



5



6

Fig. 5. *Xenoderus montanus*, gen. and sp. nov., ♀, pronotum.

Fig. 6. *Xenoderus montanus*, left elytron.

sulcus. Pronotum with the lateral velvety-brown fasciae adjoining the lateral keels from outside in prozona, and from the inside, in metazona; lateral lobes with a blackish spot in front of the first sulcus, below the middle. Abdomen with blackish lateral fasciae. Hind femora testaceous, fasciated with blackish above; externo-median area grey; knees black on the sides. Hind tibiae red, with the very base black, and a pale post-basal ring.

| | | | |
|----------------|----|----|--------|
| | | | ♀ |
| Length of body | .. | .. | 22 mm. |
| „ „ pronotum | .. | .. | 4.5 |
| „ „ elytra | .. | .. | 4 |
| „ „ hind femur | .. | .. | 12 |

Described from one female taken at Shalu, 9,300', 25.

VII.

Although the insect is represented by a single female. I have no doubt that it belongs to a hitherto unknown genus,

Superficially, it resembles a *Stauroderus*, but the shape of pronotal keels, position of its sulcus, shape of the hind margin of its disc, and of the lower margin of lateral lobes, as well as the shape and venation of elytra, do not permit including this species in *Stauroderus*. It would be very interesting to know the male of this remarkable insect, as a study of that sex may indicate whether it is not related to *Gomphocerus* which it also resembles in a marked degree.

17. *Aiolopus tamulus* (F.).

Near Shi-ku on Yangtse-kiang, 6,400'. 19. VI, 1 ♀; Gad-ssu on Yangtse-kiang, 6,600', 20. VI, 1 ♂, 1 ♀; near Chi-tien, 7,000' 3. VIII, 1 ♂.

A very widely distributed Oriental species.

Subfamily OEDIPODINAE.

18. *Locusta migratoria*, L. ph. *danica* L.

Gad-ssu on Yangtse-kiang, 6,600'. 20. VI, 7 ♂♂, 5 ♀♀; near Shi-ku on Yangtse-kiang, 6,400', 19. VI, 2 ♂♂; near Landre, Mekong valley, 9,000', 9. VII, 2 ♀♀; near Gadza, 6,600'. 4. VIII, 1 ♀.

19. *Gastrimargus transversus* (Thunb.).

Feng-ming-kai, S. of Likiang, 7,700', 4. VIII, 1 ♂; near Chi-tien, 7,000', 3. VIII, 1 ♀; Tacheng on Chi-tung R., open valley, 7,300', 1. VIII, 1 ♂, 1 larva.

20. *Gastrimargus nubilus*, sp. nov.

Smaller and much darker coloured than *G. transversus* (Thunbg.).

♂. *Antennae* reaching somewhat beyond the base of hind femora. *Head* less compressed laterally than in *G. transversus*, the face being less deep and broader. Frontal ridge slightly convex in profile, scarcely narrowed at the fastigium, very feebly dilated at the clypeus, shallowly impressed at the ocellum, coarsely, but not densely, punctured above the latter, with only a few minute scattered punctures below it. Fastigium of vertex somewhat more sloping than in *G. transversus* and forming a broader arch with the frontal ridge, longer than broad, more strongly narrowed in front than in *G. transversus*, without the median carinula; foveolae triangular, indistinct. Distance between the eyes subequal to the vertical diameter of an eye, which diameter is longer than the subocular distance. *Pronotum* well compressed laterally, but very little constricted in prozona; median keel somewhat higher than in *G. transversus*, practically straight in profile; transverse sulci indistinct; front angle obtuse, but not

rounded; hind angle acute, not rounded: lateral lobes, distinctly shorter than high, rugosely punctured. *Elytra* extending a little beyond the hind knees: discoidal vein slightly sinuate; interulnar area only a little broader than the discoidal area (distinctly broader than that in *G. transversus*). Wings narrower and with the hind margin more rounded than in *G. transversus*.

Coloration reddish-brown, with the usual pattern on the head and pronotum. *Elytra* blackish-infumate throughout, scarcely transparent in the apical half, not at all so, basally, where they are blackish-brown, with but minute and indefinite pale spots in the anterior discoidal area; a sharp and very narrow white fascia beyond the middle, between the radial and ulnar veins; no other markings or spots, only the anal field entirely green and some cells in the apical half slightly less infumate than others. Wings with the disc pale-yellow and the rest infumate throughout, only slightly paler before the apex. Hind femora and tibiae as in *G. marmoratus*.

| | | | |
|--------------------|----|----|----------|
| Length of body .. | .. | .. | ♂ 23 mm. |
| „ „ pronotum .. | .. | .. | 6 |
| „ „ elytra .. | .. | .. | 21.5 |
| „ „ hind femora .. | .. | .. | 14 |

Tacheng, 7,300', 1. VIII, 1 ♂ (type); Gadza, 6,600', 4. VIII, 1 ♂ (paratype); Sekan, Jugeh R., 7,300', 30. VII, 1 ♂ (paratype).

This new species is easily recognised by its very dark elytra with but one very narrow transverse white fascia, as well as by the wing-fascia fused with the apical spots. The latter character may be less pronounced in the female, which remains, as yet, undescribed. I do not think this is only a subspecies of *G. transversus*, because of some structural differences, mentioned in the description, and also because a quite typical specimen of the latter species has been taken at Tacheng, apparently together with the type of new species.

21. *Heteropternis respondens* (Walk.).

W. of Yangtsien, 8,000', 8. VI, 3 ♂♂, 2 ♀♀; N. of Wei-hsi, 6,000-7,700', 27. VI, 1 ♀; near Shih-ku on Yangtse-kiang, 6,400', 19. VI, 2 ♂♂; near Nan-tao, 6,400', 2. VII, 1 ♀; Shalu, 9,300', 25. VII, 5 ♀♀; near Sha-wa-tsun, Mekong R., 6,200', 29. VI, 1 ♂.

Common Oriental species.

22. *Pternoscirta pulchripes*, sp. nov.

Differs from all known species of the genus by its red hind tibiae.

♂. Of medium size, but rather robustly built. (Antennae missing). *Head* rugulose and tuberculate; frontal ridge

distinctly reclinate, moderately convex in profile, rather narrow at the fastigium, gradually but distinctly widened to between the antennae, where it is nearly twice as broad as at the fastigium, very slightly narrowed below the ocellum, feebly widened near the clypeus; its surface rugosely-foveolate at the fastigium, punctured above the ocellum, impressed at and below the latter. Fastigium of vertex moderately sloping, forming with the frontal ridge a distinct, though rounded, obtuse angle, more than half again as long as it is broad, pyriform in shape, not much narrowed in front; its surface, slightly concave, with a pair of small transverse tubercles nearly separating the very apex, and a few practically obsolete minutely round tubercles elsewhere; a quite short median longitudinal carinula (or, rather an elongate tubercle) at the back of vertex; foveolae short, acutely triangular. Occiput with a few small tubercles. *Pronotum* short and thick, callously rugose and tuberculate, moderately constricted in the prozona; two short, oblique, sharp lateral ridges at the front margin which is rounded, somewhat projecting; median keel well raised, straight in profile, lamelliform but incrassate just behind the front margin and at the second sulcus; first sulcus distinct, strongly sinuate backwards, obliterate at the sides of the keel which is notched opposite it; second (typical) sulcus practically straight, placed just before the middle, deep, cutting the keel; metazona distinctly broader than long, shallowly and broadly impressed sideways of the keel in the front part, with irregular short longitudinal rugosities and round tubercles; hind angle very obtuse, broadly rounded, not at all attenuate, its margins straight. Lateral lobes of pronotum much deeper than long, rugulose and punctured, especially in metazona; front margin moderately sinuate, somewhat oblique; front angle very obtuse, neither rounded, nor attenuate; lower margin straight and oblique backwards to beyond the middle, then broadly rounded together with the hind angle. *Sternum* with small, but very distinct, scattered punctures; mesosternal lobes transverse, their interspace slightly narrower than one of the lobes; metasternal interspace about twice as broad as long. *Elytra* extending scarcely beyond the hind knees, subcoriaceous; stigmatic arch in the middle; discoidal vein very distinct, approaching the radial vein near the apex. Hind femora scarcely denticulate on the upper margin.

Coloration dark-brown, with blackish markings and dots. Elytra with a paler pre-radial spot in the basal third, and an obsolete pale oblique spot in post-radial area beyond the middle; apical part tessellate with hyaline. Wings yellowish (? discoloured in the type), with the anterior and external half infumate. Hind femora with three sharp black spots above; their outer face with the fasciae slightly indicated by

black dots; inner face and lower sulcus yellowish, with black fasciae knees blackish. Hind tibiae red, with an ivory-white post-basal ring included between the black base and a blackish-brown ring; apical spurs blackish-brown. Abdomen yellowish, narrowly annulated with brown on the underside.

| | | |
|--------------------------|---------|--------|
| Length of body | ♂ | 21 mm. |
| pronotum | | 4.5 |
| elytra | | 18 |
| hind femor | | 13.5 |

A single male from Shuan-dang-chong, 7-8,000', 4. VI.

This is the only species of the genus with red hind tibiae which are very distinctly fasciated as well. A remarkable feature of its pronotum is the notch of the median keel opposite the first sulcus; this is in the disagreement with generic diagnosis, but I am not at all sure whether this is not an individual abnormality. The highly characteristic reticulation of the elytra leaves no doubt as to correctness of generic assignment of the new species.

23. *Trilophidia annulata* (Thubg.).

Luchang to Fei-lung, 4,500', 29. V, 2 ♂♂; Fei-lung, 4,500', 1 ♀.

24. *Sphingonotus yunnaneus*, sp. nov.

♀. Of medium size, but robustly built. *Antennae* distinctly flattened, before the apex slightly dilated, about as long as head and pronotum together. *Head* scarcely projecting above the level of pronotum. Face slightly reclinate; minutely, but deeply punctured; frontal ridge very slightly convex in profile between antennae, distinctly constricted at fastigium, dilated between antennae, below the ocellum parallel-sided and slightly more narrow than at fastigium, widened again and obliterate from below half-way between ocellus and clypeus; its surface punctured, above the ocellus slightly convex, below it strongly sulcate half-way down to clypeus. Eyes feebly projecting sideways but not upwards, broadly oval, subequal in height to subocular sulcus; interocular distance slightly broader than frontal ridge between antennae, but distinctly narrower than horizontal diameter of an eye. Fastigium of vertex feebly sloping, forming a broad arch with the frontal ridge, very feebly margined laterally and not at all in front; its surface scarcely impressed, with a very low median carinula running backwards throughout the occiput. *Pronotum* distinctly narrowed anteriorly, but feebly constricted in prozona; seen in profile practically straight above; prozona with the sulci distinct, but not deep; metazona more than half again as long as prozona, practically flat, minutely rugulose, with distinct, though rounded, shoulder

angles (taking place of lateral keels); hind angle about 90° , but broadly rounded, with the sides straight; median keel low, linear, but quite distinct throughout, even between the sulci. Lateral lobes much deeper than long, rugosely punctured, especially in metazona; anterior angle a little more than 90° , rounded; lower margin feebly ascending, slightly sinuate near the anterior angle; hind angle broadly rounded.

Sternum in scattered, shallow punctures; mesosternal lobes transverse, with the interspace as broad as one of the lobes; metasternal interspace about half again as broad as long. *Elytra* reaching to beyond the middle of hind tibiae, moderately broad, coriaceous in the basal third only, hyaline and very sparsely reticulate in the rest; discoidal vein feebly sinuate, strongly approached apically to radial vein; hind discoidal area with 2-4 very irregular rows of cells; ulnar furcal area moderately broad, practically parallel-sided, with 1-2 rows of irregular cells; interulnar area scarcely broader than the discoidal, with only very irregular, thin and interrupted false vein. Wings slightly shorter than elytra, about half again as long as they are broad, with the hind margin broadly and regularly arched; radial veins scarcely incassate. Hind femora and tibiae short. Valvae of *ovipositor* short, rounded, blunt.

Coloration reddish-ochraceous. Sides of head grey. Elytra with the basal third reddish, with some darker spot distally; indefinite, small brownish spots in the apical half and more distinct ones along the anal field. Wings faintly bluish on the disc, with a faint smoky fascia, not reaching the front and the inner margins, not touching the hind margin. Hind femora greyish, with faintest traces of brownish fasciae above, and with reddish-brown knees; inner side yellowish, with the middle of basal half brownish, and with an indefinite pre-apical fascia of the same colour. Hind tibiae pale-yellow, with the spines blackish.

| | | | |
|-------------------|----|----|--------|
| | | | ♀ |
| Length of body | .. | .. | 28 mm. |
| pronotum | .. | .. | 5.5 |
| elytra | .. | .. | 25 |
| hind femora | .. | .. | 13 |

The type and another female (paratype) are from Shalu, 9,300', 25. VII; one more female: paratype labelled simply Yunnan, 11. VII.

The species presents some characters which do not quite agree with the usual conception of *Sphingonotus*, but are not sufficiently expressed to justify a generic separation. Very loosely reticulated elytra remind one on *Bryodemus*, and so does the shape of pronotum, in which the median keel is not obliterated between the sulci, as it should be in a true *Sphingonotus*. The reticulation of elytra seems to be not

unlike also that of *Callirhipis* (not known to me by specimens), but the new species cannot be included in either of those genera on account of the venation of wings which is that of a *Sphingonotus*. When the male of this insect is discovered, its position may, perhaps, become clearer, but in the meantime I think it safest to leave it in the genus *Sphingonotus*.

Subfamily PYRGOMORPHINAE.

25. *Atractomorpha*, sp.

Feitung, 4,500', 29. V, 1 ♀; Tsing to Lan-chou, 7-8,000', 5. VI, 1 ♀; near Mekong R., 28. VI, 1 ♀; near Yej-chih, Mekong R., 6,400', 1 ♂.

I hesitate to identify the species and do not think it wise to describe it as new, since the systematics of the genus are in a most hopeless state.

Mekongia, gen. nov.

A member of the group *Sphenarii*. Antennae thick, cylindrical. Head conical; frontal ridge moderately oblique, sulcate throughout; vertex feebly ascending. short. Pronotum conical, rugose, with irregular, but distinct, lateral keels; median keel distinct; hind margin shallowly excised; lateral lobes with the lower margin slightly turned up; their hind margin sinuate. Prosternum with a low, obtuse, conical tubercle. Mesosternal lobes about as long as broad, with the inner angle rounded and the hind margin oblique, sinuate; mesosternal interspace in both sexes transverse, widened posteriorly (more so in the female). Metasternal foveolae very broadly separated in the female, distinctly so in the male. Abdomen conical, in the male somewhat recurved apically. Elytra minute, scale-like. Tympanum minute, rudimentary, closed. Front femora somewhat compressed laterally, in the male slightly incrassate. Hind femora narrow, their keels and the ridges of extemo-median area distinct. Hind tibiae sulcate below (i.e., between the two rows of spines), provided with an external subapical spine.

26. *Mekongia gregoryi* sp. nov. (Fig. 7).

♀. Antennae reaching the metazona of pronotum. Head short; face moderately reclinate, with small, scattered punctures. Frontal ridge raised between antennae, quite low elsewhere, not reaching the clypeus. Fastigio-frontal angle about 60°; fastigium slightly ascending, rounded-triangular, as broad as long, punctured, with the sulci, separating the tempora, well developed. Eyes broadly oval, as long as fastigium. Cheeks with an oblique row of low, depressed

granules. *Pronotum* short, conical, somewhat depressed, densely callously rugose and punctured; its disc very distinctly convex in transverse direction, slightly convex longitudinally; hind margin obtusely excised, with the margins broadly arched. First transverse sulcus of the pronotum obliterate; second sulcus very distinct, placed scarcely before the middle, obtusely angulate at the median keel (the angle pointing forwards), broadly sinuate sideways of the keel; third sulcus as distinct as the second, placed at the apical third, straight. Median keel low, irregular, practically obliterated in front of the second sulcus (*i.e.*, between that sulcus and the missing first sulcus), intersected by the second and third sulcus, in metazona perceptible only in front, obsolescent behind. Lateral keels low, very irregular, obtuse-angulately inflexed at the first (missing) sulcus, gradually divergent backwards,

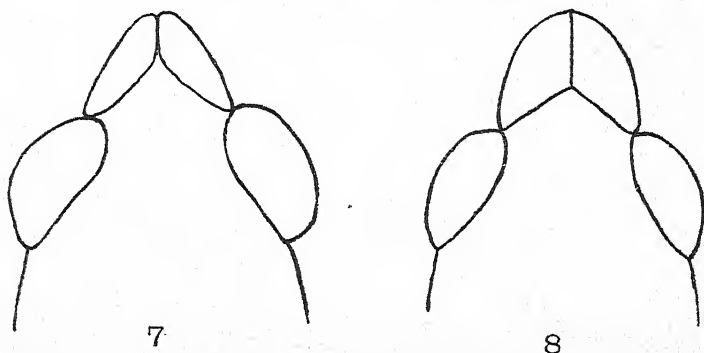


Fig. 7. *Mekongia gregoryi*, gen. and sp. nov., ♂.

Fig. 8. *Yunnanites coriacea*, gen. and sp. nov., ♂.

intersected by sulci, obsolescent in metazona. Lateral lobes much longer than high, narrowed both in front and below, broadly impressed in the middle, with a depressed callous tubercle between the second and third sulcus; front margin oblique, straight; front angle very obtuse, rounded; lower margin strongly oblique, slightly sinuate; hind angle straight; hind margin broadly sinuate. The visible part of mesonotum is slightly shorter than distance between the second and third pronotal sulci, smooth in front, obsoletely rugulose behind, with a feeble median sulcus instead of the keel. Metanotum somewhat longer than metazona of pronotum, obsoletely rugulose and punctured, broadly roundly emarginate behind, with a low median keel. Pleurae callously rugose and punctured. Elytra very small, more than twice as long as broad. Abdomen with the first tergite slightly shorter than metanotum, less distinctly rugose than the latter, with a

distinct, low median keel; the following tergites only slightly rugulose, finely punctured, slightly carinated along the middle, the sculpture growing gradually fainter posteriorly. Upper valvae of *ovipositor* robust, slightly sinuate; lower valvae much smaller, obtusely dentate, distinctly decurved. Hind femora not reaching the apex of abdomen. Hind tibiae with 9-10 outer and 11 inner spines.

Coloration greyish-brown. Antennae reddish-brown, darker distally. Cheeks bluish-grey, with the oblique callous fascia yellowish. Lower margin of the lateral pronotal lobes yellowish. Abdomen with two irregular oblique brown fasciae on each tergite. Hind femora partly pale-rose externally; lower outer sulcus castaneous. Hind tibiae pale rose; spines white, with black tips.

♂. (paratype). Much smaller than the female, with the abdomen recurved apically. Antennae slightly longer than head and pronotum together. Coloration darker, with some indefinite castaneous markings on pronotum.

| | ♀ (type). | ♂ (paratype) |
|--------------------|-----------|--------------|
| Length of body .. | 45 mm. | 28 mm |
| " " pronotum | 9 | 6 |
| " " metanotum | 3.5 | 2 |
| " " elytra | 2 | 1 |
| " " hind femora | 18 | 15 |

The female type and one of the male paratypes have been taken near Landre, Mekong valley, 8000', 9. VII; another male paratype is labelled simply "Yunnan" but it was taken at 11. VII, that is, practically, if not actually, at the same locality.

The group *Sphenarii*, in which this new genus must be placed, includes only two previously known genera, *Sphenarium* and *Prospheia*, both Central-American in their distribution, but I know another, not yet described, genus represented by several species in S.E. Africa, while one more is described below from Yunnan. The genus *Mekongia* is easily recognised by its short fastigium, sculpture of the body and scale-like, short elytra.

Yunnanites, gen. nov.

A member of the group *Sphenarii*. Antennae thick, slightly compressed distally, not at all dilated basally. Head conical; frontal ridge moderately oblique, sulcate throughout; vertex moderately ascending, short. Pronotum conical, rugulose, with the lateral keels scarcely perceptible; median keel feeble, cut by three sulci; hind margin obtusely excised; lateral lobes nearly vertical, with the hind margin strongly sinuate. Prosternum with a low, rounded, transverse inflation,

bearing a short, acutely conical tubercle on its top. Mesosternal lobes (in the male) as long as broad, with the inner angle rounded and the hind margin transverse, moderately sinuate; mesosternal interspace (in the male) slightly narrower than long, feebly widened posteriorly. Metasternal foveolae broadly separated (in the male). Elytra lateral, very narrow, but extending well beyond the second tergite. Tympanum open, membranaceous. Front and middle femora distinctly incrassate (in the male). Hind femora thick (not broad!), gradually narrowed apically, with the keels and ridges of externomedian area very low and obtuse. Hind tibiae rounded, provided with an external subapical spine.

27. *Yunnanites coriacea*, sp. nov. (Fig. 8).

♂. *Antennae* somewhat longer than head and pronotum together. *Head* rather short; face distinctly reclinate, in fairly large, but subobsolete punctures and callosities. Frontal ridge raised between antennae, but quickly lowered, quite depressed from above the ocellum, obliterated below. Fastigio-frontal angle more than 60° (the frontal ridge being distinctly convex in profile just below fastigium): fastigium feebly narrowed in front, rounded apically, scarcely longer than broad, subequal in length to an eye; tempora punctured, separated by distinct sulci. Eyes very broadly oval. Cheeks with an incomplete row of very small, depressed granules. *Pronotum* almost cylindrical, very feebly narrowed in front, leathery-rugulose; disc well convex; hind margin obtus-angulately excised, with the sides slightly convex. First transverse sulcus very feeble, but distinct, cutting the median keel, but not the lateral ones; second and third sulci deep, straight, cutting all three keels; second sulcus placed slightly before the middle, third—distinctly behind it, but before the apical third. Median keel very low and not regular, but perceptible throughout. Lateral keels very faint, slightly inflexed in the middle of prozona, feebly divergent backwards, obsolete in metazona. Lateral lobes much longer than high, strongly narrowed in front; front margin oblique, slightly convex; front angle very obtuse and broadly rounded; lower margin feebly convex, strongly ascendent; hind angle straight; hind margin strongly sinuate. The visible part of mesonotum distinctly shorter than the distance between the second and third pronotal sulci, rugose, with a distinct median keel. Metanotum as long as metazona of pronotum, rugose, with the keel very distinct; hind margin broadly excised. *Pleurae* rugose. *Elytra* coriaceous, narrow, slightly widened before the apex, reaching beyond the middle of the second tergite. *Abdomen* above leathery-rugose almost throughout, although the sculpture becomes gradually less distinct distally;

median keel running throughout. Hind tibiae with 9 outer and 11 inner spines.

Coloration uniformly reddish-oliveaceous-brown, shiny; underside more castaneous. Antennae blackish. ♂

| | | | |
|---------------------|----|----|----------|
| Length of body .. | .. | .. | 29.5 mm. |
| pronotum .. | .. | .. | 6.5 |
| metanotum .. | .. | .. | 2 |
| elytra .. | .. | .. | 6 |
| hind femur .. | .. | .. | 16.5 |

A single male from Li-chiang, 8,200'. 15. VI.

This, the second known, Asiatic genus of the group *Sphenarii* differs from *Mekongia*, described above, by its differently shaped elytra, well developed tympanum, comparatively narrow mesosternal interspace and sculpture of the body. It shows more relationship to the central-American genus *Sphenarium*, differing from the latter by the decidedly shorter fastigium, by deep pronotal sulci and by the generally more coarse sculpture.

Subfamily CATANTOPINAE.

28. *Catantops humilis* (Serv.).

North of Wei-hsi, 27. VI, 1 ♀; "Yunnan," 11. VII, 1 ♂.

This widely distributed Oriental species has been recorded from Yunnan by Walker under the name *Cyrtacanthacris punctipennis*, Walk. which is a pure synonym of *Catantops humilis*.

29. *Patanga japonica* (Bol.).

Lo-ma-ho valley, between Shuan-tun-ting and Lan-chou, 7-8,000', 5. VI, 1 ♂, 1 ♀; near Shi-ku on Yangtse-kiang, 6,400', 19. VI, 2 ♂ ♂, 2 ♀ ♀; Gad-ssu on Yangtse-kiang, 6,600', 20. VI, 1 ♂; N. of Yei-Chih, 6,400', 1. VII; near Nan-tao, 6,400', 2. VII, 2 ♂ ♂; E. of Atuntzu on Pei-Ma-Shan, 7,300', 30. VII, 1 ♀.

The Yunnan specimens approach somewhat the Indian *P. succincta* (L.) of which *japonica* may be only an Eastern subspecies.

Subfamily ACRYDIINAE.

30. *Coptotettix conspersus*, Hanc. ?

Gad-ssu on Yangtze-kiang, 6,600', 20. VI, 1 ♂.

The only specimen in the collection seems to be more distinctly granulose on the pronotum than *C. conspersus* should be according to its description. It is impossible, however, to appreciate the difference without seeing any authentic specimens of *C. conspersus* and I do not think it advisable to describe the insect from Yunnan as a new species. *C. conspersus* has been described from N.E. Assam and its occurrence in Yunnan may be easily expected.

31. *Hyboella* sp. sp.

Yung-Chang, 5,500', 24. V, 1 ♀; near Nantao, 6,400', 2. VII, 1 ♀;
S. E. of Atuntzu, 12,000', 20. VII, 1 ♀; Gadza, 6,000', 4. VIII, 1 ♀.

Four specimens of *Hyboella* belonging, apparently, to three species do not agree exactly with descriptions of known species, but I find it quite useless to describe new *Acrydiinae* from single specimens and without a careful comparison with authentic specimens of known species. The genus *Hyboella* seems to be very well represented in the Himalayas and Tibet, but the majority of species have been described from single, or very few, specimens, while only two have been figured; key to the Indian species published by Hancock (Rec. Ind. Mus., XI, 1915, p. 104) is, like most keys by that author, very confusing and indefinite.

**Blattidae collected by Prof. Gregory's expedition
to Yunnan.**

By R. HANTSCH, PH.D.

1. *Leucophæa nigra* Brunner von Wattenwyl.

1 ♀, Ho an, Yunnan, S.W. China, 4,900'. (Prof. J. W. Gregory, 26-5-1922.)

The single specimen before me agrees sufficiently with Brunner's meagre description¹, except for the absence of a thin rufous border along the anterior margin of the pronotum, the latter in this case being entirely black. The measurements of the Yunnan specimen are:—

Total length: 25 mm.; body: 17 mm.; pronotum: 5.2×6 mm.; tegmina: 20 mm.

These figures differ only slightly from those given by Brunner, except that his measurement "pron. transv. 17 mm." is quite impossible and is an obvious misprint.

Distribution: Burma (Brunner); Sumatra (Rehu); Java (Oxford University Museum).

2. *Pseudoglomeris dubia*, sp. nov.

1 ♀ (mutilated, with the last three abdominal segments missing). W. of Yangtsien, Yunnan, S.W. China, 8,000 ft. (Prof. J. W. Gregory, 8-6-1922.)

Apterous, depressed, dark bronze green, shining. Head black, vertex almost golden; antennæ dark fuscous, about two-thirds of the length of the body. Pronotum depressed, parabolic, much broader than long, posterior border almost straight, lateral angles not produced, dark bronze green, shining, deeply punctured. Mesonotum and metanotum similarly coloured and punctured, their posterior borders concave, lateral angles produced backwards. Abdominal segments (1 to 6) also dark bronze green, punctured, without sulci, lateral angles not produced backwards, segments 3 to 6 with a single impression on either side. Abdomen ventrally also uniform greenish black, shining, punctured. Legs black, with the tibial spines and tarsi dark rufous.

Length of the mutilated specimen 11 mm. (of the perfect insect probably about 13 mm.); pronotum 3.8×6.5 mm.

The exact systematic position of this species is of some

¹ *Nouveau Système des Blattaires*, p. 280 (1865).

difficulty. The species has the comparatively small and only little vaulted pronotum of a *Pseudoglomeris*, whilst the absence of sulci to the abdominal segments show its affinity to *Perisphaeria*. Also the impressions on the abdominal segments 3 to 6 remind of certain species of this latter genus, viz., *Perisphaeria lucasiana* Saussure and Zehntner, *P. armadillo* Serville, and *P. glomeriformis* Lucas. [See Saussure and Zehntner's key, in *Rev. Suisse Zool.*, Vol. III, p. 35 (1895)].

3. *Pseudoglomeris semi-sulcata*, sp. nov.

1 ♀, W. of Yangtsien, Yunnan, S.W. China, 8,000 ft. (Prof. J. W. Gregory, 8-6-1922.)

Apterous, depressed, black, shining. Head black, shining; antennæ more than one half of the length of the body, black. Pronotum semi circular, only slightly vaulted, posterior border almost straight, its middle barely produced backwards, shining black, with the margins rufous and semi-transparent, entirely punctured. Mesonotum and metanotum shining black, punctured, their lateral angles lobiform, produced backwards. Abdominal segments of the same colour, punctured; 2nd, 3rd and 4th segments above with distinct sulci which are also distinctly, though minutely punctured; remaining segments above without sulci; segments below with sulci throughout; lateral angles of the 6th segment not produced posteriorly. Subgenital lamina small, semicircular; cerci rufous. Legs black, tarsi dark fuscous.

Total length 14 mm.; pronotum 4×5.8 mm.

Nearest to *Pseudoglomeris nepalensis* Saussure and Zehntner, from Sikkim, but smaller (viz., total length 14 mm. as against 18 mm.), and differing from it especially by the pronotum being much narrower (viz., 5.8 mm. against 9 mm.).

From the single specimen before me I am unable to tell how far the presence or absence of abdominal sulci is of specific value, and whether or not their appearance may be due to a greater or lesser contraction of the body.

Note on a Brackish-water Actinian from Madras.

By H. SRINIVASA RAO, M.A., *Assistant Superintendent,
Zoological Survey of India.*

(Communicated with the permission of the Director, Zoological Survey of India, by Dr. S. L. Hora.)

Our knowledge of the brackish-water Actinians in India dates from the time of Stoliczka,¹ who, in the year 1869, recorded a form from Port Canning in Lower Bengal. He described the anatomy and habits of this form under the name *Sagartia schilleriana* Stoliczka. In 1907 Annandale,² while studying the fauna of the brackish-water ponds in the same locality, discovered three forms of which one was Stoliczka's species, which he ascribed to the genus *Metridium*. He regarded the second form as a variety of *Metridium schilleriana* and the third as the young of the variety. In 1914 he recorded the two latter from the Chilka Lake, and regarded them as the types of his genera *Pelocætes* and *Phytocætes* respectively.³ The Gangetic and Chilka species of the former were identical, while those of the latter were distinct. *Metridium schilleriana* was, however, not found in the Chilka Lake. Considerable light has been thrown on the structure and bionomics of the Indian brackish-water Actiniaria by the researches of the late Dr. Annandale, but the field is yet wide and requires thorough investigation. In a recent paper on the classification of Actiniaria Stephenson⁴ has discussed the mutual relationship of the Indian brackish-water Actinians in great detail. He suggested the new name *Diadumene* for the genus containing Stoliczka's species giving reasons for dropping the generic names *Sagartia* and *Metridium*. He regarded the Chilka species of *Phytocætes* as the type of a distinct genus named by him *Mena* and grouped all the known Indian brackish-water genera under the new family name *Diadumenidae*.

There are thus four species of brackish-water Actiniaria representing the four genera *Diadumene*, *Pelocætes*, *Phytocætes* and *Mena*. The distribution of the species seems to be restricted, having been recorded hitherto from the Gangetic delta and

¹ Stoliczka, F., *Journ. As. Soc. Bengal.*, xxxviii, p. 28, pls. x-xi (1869).

² Annandale, N., *Rec. Ind. Mus.*, I, p. 47, pls. iii-iv (1907).

³ Annandale, N., *Mem. Ind. Mus.*, V, pp. 72-88 (1915).

⁴ Stephenson, T. A., *Quart. Journ. Micros. Sci.*, lxiv, pp. 520-523 (1920).

the Chilka Lake. It is, however, probable as suggested by Annandale, that *Pelocætes exul* (first recorded from Port Canning as a variety of *Diadumene schilleriana*) is more widely distributed than we know. It occurs in smaller numbers in the brackish-water area at Madras. I have been able to find only two individuals of this species in a collection consisting of several individuals of the form which is the subject of the present note. One of them was abnormal having only 11 divisions of the oral disc, 11 pedunculated and 11 simple tentacles in two cycles. The mesenteries were, however, normal.

The form described in this note is apparently new to science¹ and is probably closely allied to *Pelocætes exul*. It is not intended here to discuss the systematic position of this new Actinian on inadequate anatomical data, but simply to

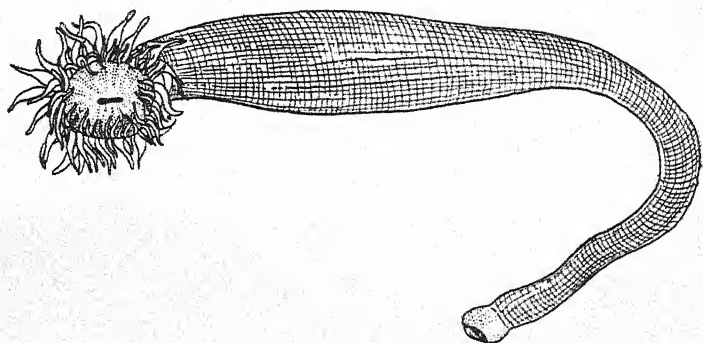


Fig. 1.—Brackish-water Actinian from Adyar, Madras.

record a few observations made in the field and in the laboratory which may interest workers on the subject.

In the year 1917, while collecting worms and molluscs on the edge of a brackish-water area near Adyar in Madras, my attention was arrested by the presence of a number of Actinians in burrows at the bottom of shallow pools of water. They had long and thin, fully expanded tentacles of a creamy white colour and were found buried up to the edge of the oral disc. At first sight they appeared to be sticking on to the muddy bottom by their basal discs. On attempting to remove one of the Actinians from its supposed attachment to the mud, it suddenly withdrew into the burrow with the tentacles grouped in a mass, and receded deeper into the burrow on inserting a small stick. Attempts to obtain the Actinians by digging the

¹ Specimens of this form collected by Dr. F. H. Gravely and myself in January, 1922, have been sent to Mr. T. A. Stephenson for identification.

burrows resulted only in securing parts of the animals. Several complete individuals were, however, obtained with the help of a spade which was suddenly plunged into the mud close to the burrows and levered up to obtain a large lump of the soil containing the animals. The animals were all picked up in a flabby condition, some of them filled with water. They had a long vermiform column with a reduced basal disc, and numerous simple tentacles arranged in cycles. In general appearance the individuals seemed to approach those of *Pelocetes exul*, but differed in the number and arrangement of the tentacles.

Before going into some details of the anatomy and habits of the animal a short descriptive account of its habitat will not be out of place. About three miles south of Fort St. George the river Adyar opens out to the sea. On the north-bank of the river lies a low area about half a square mile in extent within a few yards from the surf line. It may roughly be divided into two regions, a central zone which is deep and a marginal zone consisting of shallow pools and channels. During heavy rains in November this division is not apparent, the whole area being covered by a continuous sheet of water. The area is in communication with the river close to its mouth and through the latter with the sea. The water at this time of the year is quite fresh. From January the level of water begins to fall and the mouth of the river is gradually closed by a sand-bank raised by the action of breakers. For a period of about eight months in the year commencing from March the water is brackish and sometimes distinctly saline. The bottom consists of soft clay mixed with fine sand, and in some parts covered by vegetable debris. Large masses of algæ, chiefly a species of *Enteromorpha*, float on the surface in the central zone. Isolated mangrove formations are present on the western half of the area. The fauna has a preponderating marine element, but it is probable that many of the species are distinct from the true marine ones found in the open sea. Representatives of all the marine groups except Echinodermata are present. The great masses of algæ harbour a large number of animals, chief of which are Amphipods, Isopods, Turbellarians, and Nudibranchs. The marginal zone teems with life, the most striking being hermitcrabs inhabiting shells of various marine Gastropods and even hollow bones, smaller Crustacea, Polychætes and Oligochaetes. The fauna as a whole is quite varied and interesting, and an intensive survey of the area will probably yield valuable results.

The Actinians in question occur chiefly on the edge of the marginal zone East and West of the area. In the former locality there are fairly deep pools between artificial sand banks and in the latter open shallow ones. I have taken individuals from both zones, but it is easier to obtain them from the marginal zone on the West. They are conspicuous in the bright morning

sun and have their tentacles fully expanded just above the burrows. As the day advances they withdraw themselves into their burrows and reappear in the evening about sunset. They are, however, much less conspicuous at sunset than at dawn. I have visited the area almost every month from July to March, but have found the Actinians only from January to March. So far as my observations go not a single individual was found during the other months. Their absence during these months is probably due to the heat in the first half and to the freshness of the water in the second. The fishermen of the place, who dig up the bottom for a species of Polychæte worm (*Marphysa*) which they use as a bait for fish, have also remarked the absence of the Actinians during this period. They call them 'flower-like worms' in their vernacular and are acquainted with their burrowing habits, and remarkably enough

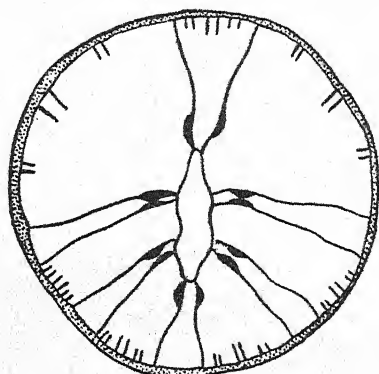


Fig. 2.—Transverse section of column of Actinian a little below oral aperture showing the arrangement of mesenteries.

have also some notion of their relationship to the Actinians found sticking to the cement-boulders in the Madras harbour or to cables some distance from the shore.

The column of the animal closely resembles that of *Pelocætes exul* and has a reduced pedal disc at its lower extremity. The latter is a cup-shaped depression with an even margin and is filled with a sticky secretion enclosing mud and grains of sand. In incomplete individuals which are kept alive in an aquarium, a secondary pedal disc with an irregular margin is formed and functions like the real disc for sticking to the bottom. The longitudinal and transverse muscles of the column are clearly seen in the fully expanded animal, and through the thin body wall the mesenteries and gonads are also visible. Cincloides with an elliptical outline and definite lips are present in longitudinal rows in the intermesenterial spaces. They are best seen in the fully expanded living

animal, but can also be distinguished in well-preserved individuals. In the fully expanded animal the oral disc slightly extends beyond the column. It is usually lobulated consisting of twelve radial divisions which are further subdivided in some individuals. The oral aperture is elongate and oblong and frequently tightly closed leaving a circular opening at each end. The tentacles are usually of a cream colour, but in a few specimens they have a pinkish tinge. They are long and tapering and perforated by a minute opening at their distal extremity. They are arranged in four cycles, each consisting of 24 tentacles. The tentacles of the innermost cycle alternate with the radial divisions of the oral disc, while those of the others alternate with the tentacles of the next inner cycle. The relative lengths of the tentacles of the four cycles vary in different individuals. For instance in some specimens the tentacles of the two inner cycles are longer than those of the outer, in others those of the two central cycles are shorter than those of the outer or the inner, while in others the tentacles of the outer cycle are much longer than those of the other three. This difference in the relative lengths of the tentacles is to be seen in both living and preserved specimens. There are six pairs of macrocnemes and eighteen pairs of microcnemes. In a few individuals there are twenty-one pairs of the latter, the three additional pairs being found between one of the pairs of directives. The arrangement of the longitudinal muscles on the primary mesenteries is identical with that of *P. exul*. The free margins of the macrocnemes bear mesenterial filaments and acontia, and next to these on the inner side the gonads. Stoma are also present on the macrocnemes. The microcnemes are all sterile. The tentacular cavities are in open communication with the intra- and inter mesenterial spaces. Nematocysts are present on the column and tentacles, but they are more numerous on the latter. They are of two sizes, long and short ones, the former being more numerous.

Of several individuals examined a few were immature, while all the rest bore spermaries only. Despite careful examination of a large number of specimens I have failed to find even a single specimen bearing ovaries. The ovaries are probably formed at a later quiescent period during which the animals apparently rarely come out of their burrows.

The gonads consist of a number of elliptical bodies somewhat convex above arranged in a sinuous row between the longitudinal muscles and the free margin of each macrocneme. They are brownish in colour with a number of orange-coloured spots and consist of polygonal cells from which the spermatozoa project tail foremost. The latter have a roughly oval head with a moderately long tail. The narrow space between the gonads and the free margin of the macrocneme is occupied by the mesenterial filament which is divisible into two por-

tions, the inner consisting of a row of elongate elliptical cells provided with a few long cilia, and the outer of shorter columnar cells with numerous short cilia. Nematocysts are found in large numbers in the outer portion. The two portions are intricately folded, and in the living animal perform constant

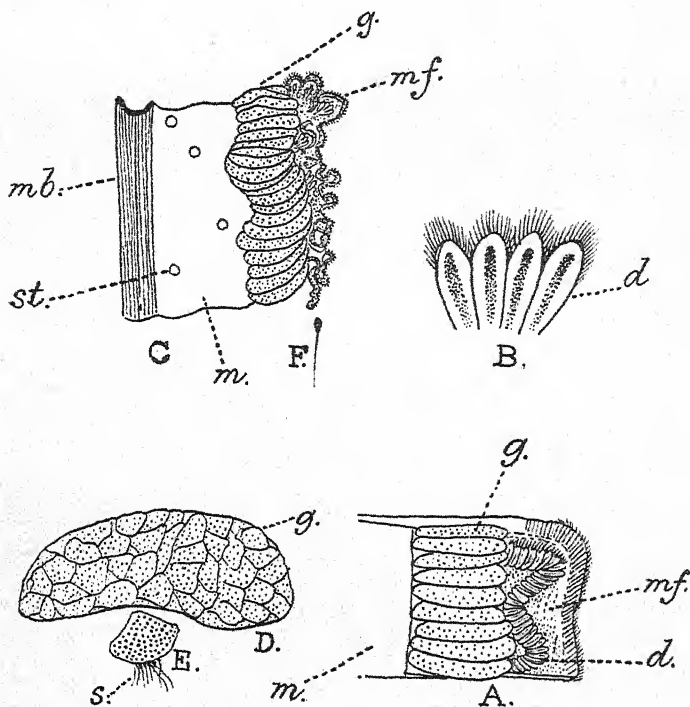


Fig. 3.—Semi-diagrammatic sketch of a fertile mesentery and associated structures.

- A. Part of mesentery showing the disposition of gonads and filament.
- B. Enlarged view of ciliated cells outside the gonads.
- C. Part of mesentery from a living Actinian.
- D. Portion of spermaries.
- E. Single cell of Spermaries with Spermatozoa.
- F. Single Spermatozoan.

d., row of ciliated cells forming part of mesenterial filament; *g.*, spermaries; *m.*, mesentery; *mb.*, longitudinal muscle of mesentery; *mf.*, mesenterial filament; *s.*, spermatozoa; *st.*, stoma.

wriggling movements. Remains of small Crustacea are found in abundance in the gastro-vascular cavity. These apparently form the usual food of the Actinians in their natural environment. A ciliate Protozoan (*Trichodina* sp.) is found in large numbers in the gastro-vascular cavity, and often swarming in

the cavities of the tentacles. They probably find their exit through the tentacular aperture.

The following account of the habits of the Actinian is based on observations made in the laboratory of the Presidency College, Madras, in December, 1918:—

The bottom of a tall cylindrical jar was covered with soft mud obtained from the brackish-water area at Adyar to a height of about four inches. Owing to the difficulty of obtaining a regular supply of brackish-water from the area, a mixture of equal volumes of sea-water and freshwater was used. Small burrows were made in the mud and the Actinians inserted in them up to half the length of their column. The animals under observation were sexually mature but were incomplete, measuring about four inches. They were easier to handle than the long complete individuals which could not be inserted into the burrows without injury to the column. Water in the jar was changed twice a week and the Actinians fed with plankton obtained by townets from the open sea. To prevent crowding only four individuals were kept at a time in the aquarium. Observations were only made during day time.

On the second day the Actinians were found disengaged from their burrows and lying with their column parallel to the bottom. Three of them had their tentacles fully expanded and directed upwards while the fourth had them slightly contracted and directed sideways. The former appeared to be shorter than on the preceding day. On examining their burrows it was found that a small portion of the column of the animals was left behind. The upper half of the column was bulged out and translucent, and the cinclides were slightly dilated. The mesenteries and gonads were visible through the thin walls of the column. All the four specimens were then irritated by a needle and it was observed that in three of them the basal half of the tentacles bent over the oral disc which gradually sank down with simultaneous jerky contractions of the upper part of the column. The tentacles were then partially enclosed by the portion of the column which had risen up as a result of the contraction. But in the fourth individual the response was different. By a sudden contraction, the upper part of the column closed over a greater length of the partially contracted tentacles and was exceedingly bulged out. After some time this individual was found floating some distance below the surface of water, and in this condition it remained for several hours. On the third day, however, it had settled to the bottom with its tentacles partially expanded.

The first set of four actinians was replaced by a fresh one. The burrows made in the mud were filled up and the animals were left undisturbed on a level surface for three days. On the fourth day it was found that two of them had a small portion of the column buried in the mud, and the remaining

two sticking to the bottom by their basal disc. All the four were then gently dislodged from their position and laid with their column parallel to the bottom. Three days later one of them was partially buried while the others were found in a prone position. The oral disc including the tentacles was inclined towards the bottom in the former, and directed upwards in the latter. On the sixth day two individuals were found in burrows excavated, apparently, by the action of the pedal disc. It was remarkable that nearly half the length of their column was found buried. In one of them the tentacles were contracted and partially enclosed by the upper part of the column, and in the other they were fully expanded. When gently disturbed the former withdrew itself completely in the burrow while the latter did not respond to the stimulus. The former was removed from its burrow and left in a prone position close to the burrow, and was found to have resumed its position in the burrow on the following day. The fourth specimen which remained undisturbed in the prone condition was next placed in a deep burrow up to the base of the tentacles, but was found outside the burrow on the following day.

The results of the foregoing observations may be summed up as follows:—

1. In incomplete individuals, *i.e.*, in those in which the basal half of the column is lost in the burrow, a secondary pedal disc with an irregular outline is formed.

2. The secondary pedal disc is used primarily as a burrowing organ and secondarily as an organ of locomotion.

3. The Actinian undergoes autotomy and rapid regeneration of the lost or injured parts.

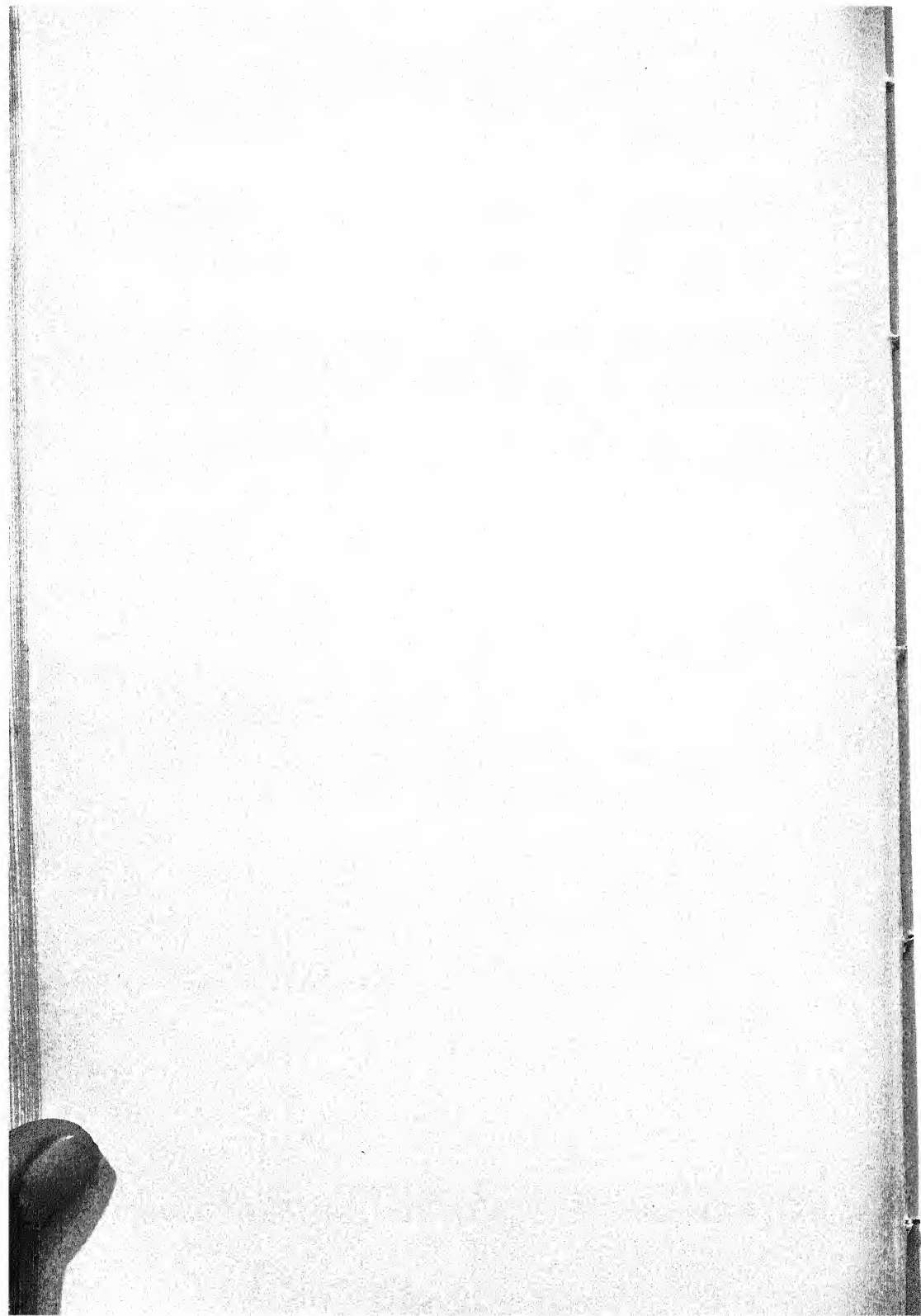
4. The tentacles and oral disc are subject to partial or more or less complete contraction.

Further observations would have yielded interesting results, but unfortunately owing to my unavoidable absence from Madras for a considerable period they could not be continued. The Actinians were, however, left undisturbed for a period of over three months unfed and without changes of water. They were found living in an apparently healthy condition during this period. I am indebted to my teacher and friend Mr. R. Gopala Iyer for this information. This fact points to their great powers of resistance to adverse environmental conditions.

It may be argued that my observations of the habits of the Actinians were made under conditions totally different from those in their natural surroundings, and do not therefore refer to their true behaviour. In the first instance I attempted to conduct the same series of experiments in an isolated spot of the brackish-water area visiting it twice a week to record my observations, but the shallower regions of the area where the animals were found in numbers were so frequently dug up by the local fishermen for worms that my attempts to obtain

correct observations in their natural surroundings had failed. I have, however, observed that the Actinians are much more sensitive to mechanical disturbances in their natural environment than under laboratory conditions. The water used for the aquarium was probably more saline than that of the area itself, and may have, to some extent, influenced my results. I presume, however, that the Actinians behave more or less in the same way under natural conditions as well.

I take this opportunity to express my sincere thanks to my professor, Rao Bahadur K. Ramunni Menon, who gave me every facility to work in the laboratory of the Presidency College.



A Study of a Disease of the Garden Peas (*Pisum sativum*) due to *Sclerotium rolfsii*.

By DR. H. CHAUDHURI, *Panjab University.*

In November, 1923 pea plants were grown for physiological experiments, and when these had grown to a height of 8" or 10", the lower leaves, in some cases, began to dry up, followed by the upper leaves and ultimately the whole plant. It was obviously not a case of wilting, for the leaves at the tips were affected last. In some cases, however, bacterial rot set in and killed the plants quickly. After the first sign of the disease became visible, it was not before three to four weeks that the plants were killed. In rare cases, however, plants wilted after the first visible signs of the disease. Careful examination of the aerial parts failed to show any casual organism excepting bacteria, which were present as a result of subsequent infection. The roots were also quite healthy, and it was only in the collars of the plants, where the tissues were drying up, that the fungal hyphae were found. Cultures from these mycelia were made in various media. In culture the fungus produced a silky mycelium which, coming in contact with the glass surface of the test tubes and petri dishes, produced innumerable round sclerotia. The diameter of the sclerotium varied from 0.9 to 1.3 mm. These sclerotia germinated at once without any period of rest, whenever the conditions were favourable. Single sclerotia in hanging drops of Coons' liquid or potato extract germinated readily and produced a mycelium and sclerotia. The sclerotium is smooth and round and easily gets detached from the hyphae. Inside the host tissue no sclerotium was found. Search was made in the soil for the casual organism. On turning the soil loose cottony mycelia were seen, which with the drying up of the soil produced dark brown, almost black sclerotia abundantly. These were of the same size and in all respects the same as those developed from the culture of the hyphae found in the host tissue. The sclerotium when first formed is milky white, gradually turning brown, dark brown to black as it matures. The fungus grew well in a variety of media, viz. potato mush agar, purple lactose agar, glucose agar, potato extract agar and Coons' synthetic medium in agar. It also grew in liquid media, but not so readily. In the solid and as well as in the liquid media the fungus did not produce sclerotia when growing in the media, but only when growing away from it. In the culture tubes and petri dishes sclerotia were produced, when the hyphae came in contact with the glass surfaces, as already

mentioned. Figures 1 (*a* and *b*) shows the photograph of the two halves of the petri dishes, where (*a*) with silky mycelium developed in Coons' medium contains very few sclerotia and (*b*) contains innumerable sclerotia and no mycelium whatsoever.

At the least chance of desiccation or starvation this fungus at once produced sclerotia. Effect of desiccation was seen by simply turning the infected soil, when in a couple of days' time innumerable sclerotia appeared. Also when of two petri dish cultures, both growing quite vigorously, one was placed in a desiccator and the other in a similar vessel containing a quantity of water to keep the chamber moist, sclerotia appeared in the former case very quickly, but their formation was delayed in the latter case for a long time, in fact not till the food material was almost exhausted or the staling products had prevented further growth. It may be mentioned here that this fungus is an acid producer, and it has been found, by growing it

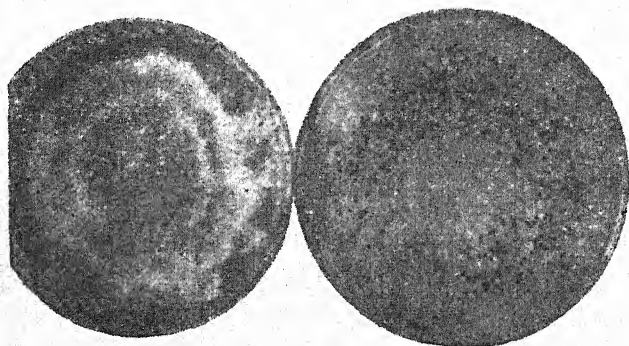


Fig. 1 (*a* and *b*.)

in media of different hydrogen ion concentrations, that the growth-range is confined between P_{H} 5 on the acid side and P_{H} 7.8-8, on the alkaline side. The effect of starvation on sclerotium formation may be shown according to Claussen (*Ztsch. f. Botn*, 1912.) by growing the fungus in a small watch glass contained inside a bigger watch glass; the former containing Coons' synthetic medium in agar and the latter the same without asparagin and maltose. As long as the fungus was confined within the inner watch glass, it produced abundant mycelia, and when it grew out into the outer dish, it was starved and produced sclerotia at once.

Relation of sclerotia formation to food material.—Investigations were carried out with Coons' synthetic medium which consisted of asparagin, maltose, potassium-dihydrogen-phosphate, and magnesium sulphate (Coons, O.H., Factors involved in growth and pycnidium formation of *Plenodomus rufomaculans*. *Journ, Agric. Res*, v. 1916). In the experiments the

amount of asparagin and maltose has been controlled ; in some being reduced to half or one fourth and in other cases one or the other or both being omitted altogether. Thus when Coons' normal solution was diluted to half the strength, the spread, though the same for the same temperature, mycelia production and sclerotia formation were different ; less mycelium and fewer sclerotia were formed. When only asparagin was reduced to half, no appreciable difference either in the mycelium production or in the sclerotium formation was found ; but whenever maltose was reduced, there was a marked decrease in the production of mycelia as well as in the sclerotium formation, and with elimination of maltose altogether no growth took place. The following shows the result in a tabulated form:—

| MEDIUM | MYCELIUM | SCLEROTIUM |
|---------------------------------|------------------------|------------------------|
| Coons' normal | good floccose mycelium | innumerable sclerotia. |
| Coons' $\frac{1}{2}$ normal | less mycelium | fewer sclerotia |
| Coons' ($\frac{1}{2}$ Asparg.) | good mycelium | many sclerotia |
| Coons' ($\frac{1}{2}$ Malt.) | scanty mycelium | few sclerotia |
| Coons' (no Asparg.) | indifferent growth | a number of sclerotia |
| Coons' (no Malt.) | no growth | no sclerotia |
| Coons' (no Asparg. no Malt.) | no growth | no sclerotia |

Isolation of the fungus from the host.—A ready method was found in cutting the collar of the infected plant, smearing it with alcohol and passing it quickly through the flame to get rid of any foreign organism sticking to the sides and then putting it in a sterilised Roux tube containing a small quantity of water, which was incubated at a suitable temperature. Aërial hyphae were seen to come out of the host tissue usually on the third or fourth day, from which pure cultures were easily made. Sclerotia are formed by the rounding off of a number of hyphae together. A transverse section of a mature sclerotium shows a distinct outer epidermal layer with hard black thickened cells and a central pseudo-parenchymatous portion. In culture the mycelium does not turn brown either at the edges or at the surface of the medium and no dark brown appendages are formed at the margin of the growth, as found by Butler (Diseases of plants) in *Sclerotium oryzae*, and no hollow cavity is formed in the sclerotium, as found in the Italian specimen of the same fungus.

Nature of infection.—This fungus has been found to be a wound parasite. When plants were grown in an infected soil, only those plants that were scratched or bruised, preferably near the collar, got infected. In nature this may be due to insect bites, etc.

Growth and temperature.—This fungus has a long range of

temperature for its growth. It grows at as low a temperature as 10-12 C., and does not cease growing till over 33°C.; the growth at the two extreme temperatures, however, is very slow. Comparative study of growth in relation to temperature was made. Figure 2 shows the rate of spread of the fungus at different temperatures and also gives a satisfactory measure of growth in a medium of constant temperature and constant thickness (Chaudhuri. H., A study of the growth in culture of *Verticillium alboatrum*, Annals of Botany, CXLVII.). Maximum spread of the fungus was between 22-24°C., with Coons' synthetic medium in agar of 3 mm. thickness.

The area of the "spread" of the fungus at different temperatures as plotted in the foregoing figure, has been taken as equal to the square of the diameter.

Effect of darkness on sclerotium formation.—Plates of Coons'

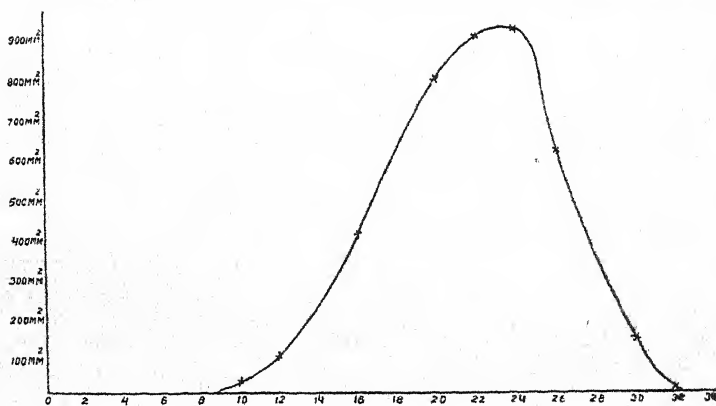


Fig. 2.

normal solution in agar were inoculated in the centre; some of the petri dishes were painted with a thick double coating of Sapolin black. The inoculated petri dishes were now placed on a table facing the window. The room temperature was between 26-28°C. The plates were examined after four weeks and again after six weeks, but no difference could be found regarding either the number of sclerotia or the average weight of the sclerotium produced.

Thermal death point.—The bacterial method of finding the thermal death point was followed and it was found to be 57°C. The following shows the percentage of germination at different temperatures.

| | | | | |
|------------------|------|-------------|------------|------------------------------|
| 30° to 45°C..... | 100% | 47°... 100% | 51°... 80% | 55°... 5%. |
| 50°C..... | 95% | 48°... 100% | 52°... 60% | 56°... 1% or nil. |
| 55°C..... | 5% | 49°... 98% | 53°... 40% | 57° and beyond this, nil. |
| 60°C..... | 0% | 50°... 95% | 54°... 10% | |

Fig. 3 shows the result graphically :

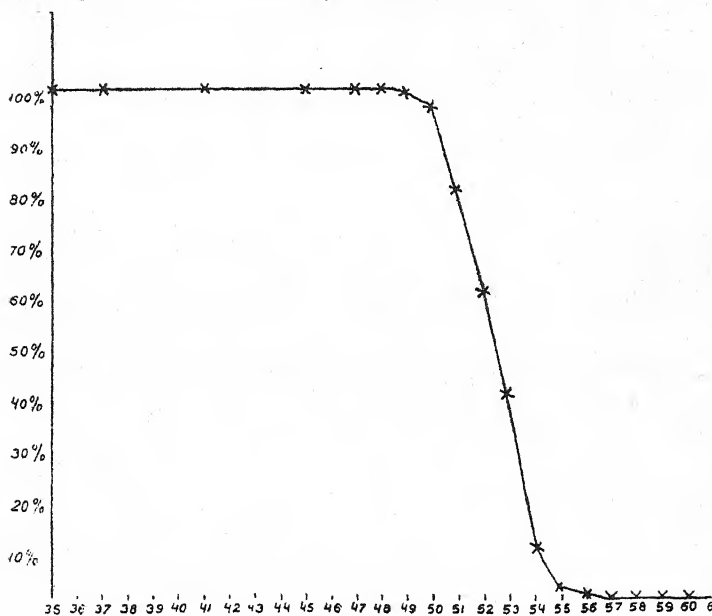


Fig. 3.

Control.—It has not been possible to investigate the immunity or partial resistance of different varieties of peas. As the organism remains in the soil in the sclerotial form, soil sterilisation has been tried and found to be very successful. By subjecting the soil in pots to 30 lbs. steam pressure for 10 minutes perfect sterilisation was obtained.

Summary.—During the winter of 1923 pea plants grown in pots were found to be suffering from disease. The plants gradually dried from below upwards. The causal organism has been isolated both from the soil and the diseased plants tissues.

Infection occurs through wounds only and specially through wounds in the collars.

The fungus has been grown in various media. The P_{11} value of these media ranged between 5 and 7.8. Below 5 it grew very little and above 7.8 it refused to grow.

It has a very long temperature range of growth. Beginning at 10°C., it does not stop growing till 33°C. is exceeded. Optimum 22-24°. The effect of light on sclerotium formation has been studied. No appreciable difference was found by growing in darkness. A dry atmosphere was found to favour sclerotial formation. In the laboratory autoclaving the soil in pots at 30 lbs. pressure for 10 minutes secured perfect sterilisation.

Before concluding the author takes the opportunity of thanking Prof. S. C. Banerjee, M.A., B.Sc., F.L.S., for the facilities given him last summer for working in the Botanical laboratory of the Presidency College, Calcutta, where the concluding portion of the work was done.

*Department of Botany,
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Dec. 26, 1924.

Oedogonium Nagii, sp. nov.

By H. CHAUDHURI, Ph.D. (Lond.), M.Sc. (Cal.), D.I.C.,
Department of Botany, The Panjab University.

In January last some *Zygnemas* were collected from the ditches in the Hazuribag, Lahore. They were left in a wide-mouthed bottle in tap water. After some time the filaments died away, and later a few green specks appeared at the margin on the surface of the water. These were examined and found to be young *Oedogonium* filaments. They were placed attached to the sides of the glass in a jar containing earth decoction (20%) with Potassium nitrate (1%). They grew luxuriantly. The young filaments were attached at the base by a brown cementing substance. From each attachment spot a cluster of filaments grew out (Fig. 1). Whenever these filaments were released from their attachment they did not float at all, but sank down to the bottom, where they grew, forming a flocculent mass. The apical part of each individual cell, as usual, is slightly wider than the basal, and sometimes quite tumid. The cells in the same filament are not alike. Sometimes individual cells become narrow and long (Fig. 2). The basal cells are generally rather large, tumid, elongated at the basal end and branched to form a rhizoid-like growth (Fig. 1). The protoplast, in which the chloroplasts are embedded, is disposed parietally. The position of the nucleus is variable. Large numbers of starch grains are present, specially in the oogonia. In young cells the protoplast are compact bodies, but just before a new cell is formed the nucleus divides, the protoplast loses its compact nature and the whole space becomes filled up with the loose protoplast. The crook appears at the upper end of the cells and half of the protoplast is now drawn out into a new cell. When the filaments become older they lose their green colour. Starch grains become prominent, and they also finally disappear, and the plants die. Sometimes only the fertilised oospores may be seen attached at intervals between the empty vegetative cells. Those oogonia which are not fertilised, gradually degenerate like the old vegetative cells.

Asexual Reproduction.—Zoospores may be formed by any vegetative cell. The protoplast contracts away from the cell-wall to form zoospore. The cell-wall splits transversely for some distance at the upper end of the cell and the new zoospore, enclosed in a hyaline vesicle, comes out. The zoospore is almost round, but slightly protruded at the colour-

less end, where it bears a circlet of small cilia. It is about $12-13\mu$ long. After its liberation it moves about for half an hour or less, spinning all the time. It then attaches itself by its colourless end. On germination, the fixed end of the cell branches off to produce a rhizoid-like holdfast (Figs. 3-9). The protoplast extends to the rhizoidal branches but the chloroplasts do not. Sometimes the plants reproduce asexually just after germination, when they are unicellular (Fig. 9), by liberating the zoospore. Numerous zoospores are formed in the early stages, but when the filaments bear the sexual organs, generally no zoospores are formed. Only in exceptional cases the filaments produce zoospores simultaneously with the sexual organs. In the female filaments the formation of the zoospores can at once be made out, as the cells producing the zoospores become empty.

Sexual Reproduction.—This new species belongs to the group of the dioecious nanandrous forms. The female filaments are slightly broader (16-18) and more elongated than the filaments producing the androgonidangia (14-15), but otherwise alike. They are of unlimited growth. The oogonium develops from any vegetative cell. The size of the oogonium varies very much, from $44 \times 40 \mu$ to $80 \times 60 \mu$. There is no difference between the supporting cells, and the other cells of the filaments. The oogonia are ellipsoidal globose bodies. They occur at irregular intervals. The number of oogonia in a single filament is indefinite (Fig. 10). Sometimes there are one hundred or more oogonia in one filament. Just before the formation of the oogonium, the vegetative cell bulges out. The bulging out is not uniform, hence the filament inclines in one or another direction. The protoplast of each oogonium becomes rounded off to form the egg-cell. The oogonium at first is of very dense colour; sometimes it is almost black. When mature it takes on a lighter shade and a portion at the top becomes clearer and forms the receptive spot (Fig. 16). The wall of the oogonium opens by means of a flap just opposite the receptive spot (Fig. 11). When the oogonium has formed the opening, masses of gelatinous matter protrude out through it. Methyl violet stained this jelly and the clearer spot beautifully. After an antherozoid has entered and fertilised the egg, it becomes filled up with starch grains, oil-drops, etc., and takes on a reddish-brown or brownish colouration due to development of brown pigment. This pigment can be extracted by alcohol.

The filaments producing the androgonidangia, as mentioned before, are not of unlimited growth as the female filaments. Before the formation of the androgonidangia the filaments divide transversely and form short cells (Fig. 12). These constitute the androgonidangia (Fig. 13). The wall splitting transversely at the upper ends, a hyaline vesicle is

formed into which the solitary androgonidium passes (Fig. 14). The androgonidium in this species is the same as the antheridium, as it splits and sets free the antherozoid without undergoing any further divisions. The androgonidium after a little while comes out of the vesicle. It resembles in shape the zoospores ($12-13\mu$) but is only a little smaller ($10-11\mu$). It moves about and comes to rest at the side of the oogonial wall, where it attaches itself by its anterior end bearing the circlet of cilia (Fig. 15). Sometimes a number of these androgonidia come to rest on the same oogonium. No further growth takes place. The apical portion falls off like a lid by a circular slit (Fig. 15a). The antherozoid is now liberated (Fig. 15b) and spinning on its axis makes its way through the pore. Sometimes more than one antherozoid enters the oogonium. As the species has been found to deviate materially from all species described up to now it has been described as a new species, which I propose to name *Oedogonium nagii*, sp. nov., in honour of my late teacher, Prof. J. C. Nag, of the Presidency College, Calcutta. In conclusion the author acknowledges his indebtedness to Prof. S. P. Agharkar for kindly looking through the manuscript and helping him with the literature on the subject.

Description.—Vegetative plants—long filamentous. Cells $16\mu \times 18\mu$. Zoospores $12-13\mu$ long. Dioecious nanandrous form. Female filaments same as vegetative plants. Oogonium $44-80\mu \times 40-60\mu$. Androgonidia—short thick filaments; cells $14-15\mu$. Androgonidia $10-11\mu$, opens by a lid liberating the antherozoids directly ($8-10\mu$).

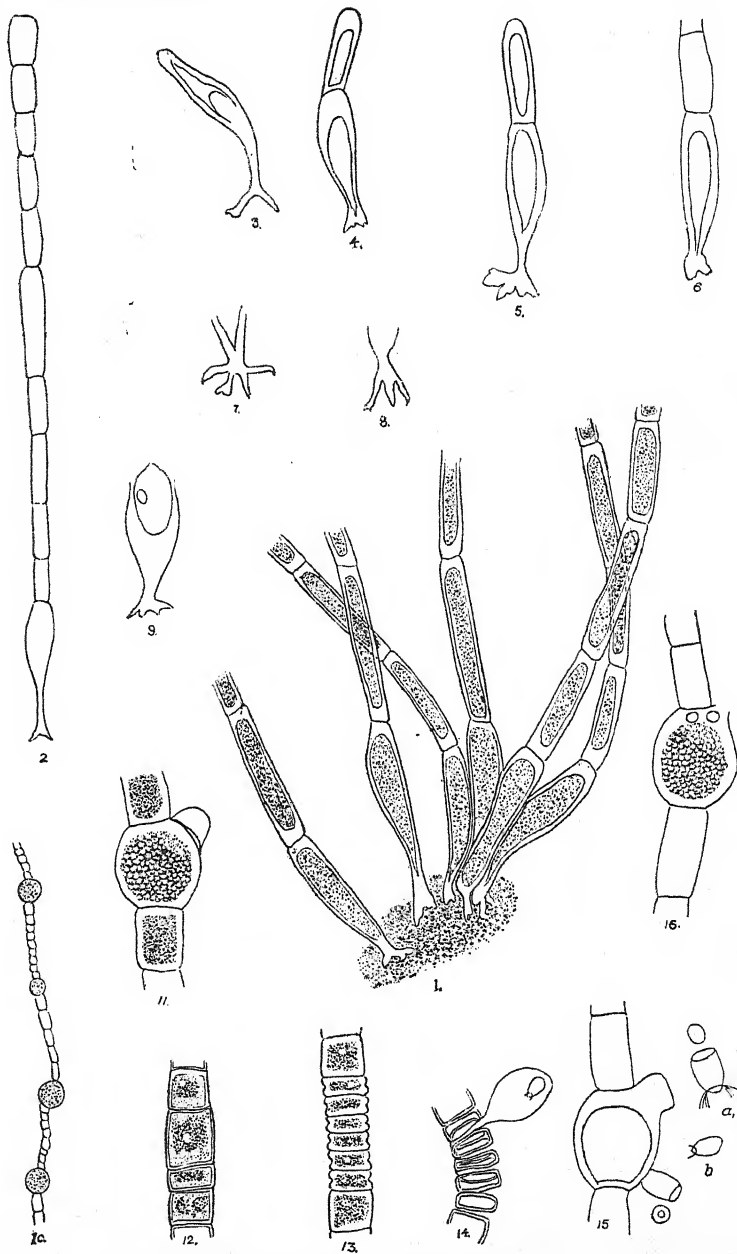
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EXPLANATION OF PLATE.

Oedogonium Nagii, sp. nov.

- Fig. 1. A cluster of the young filaments attached by a brown cementing substance. $\times 540$.
Fig. 2. A single filament showing the difference in cells in the same filament. $\times 540$.
Figs. 3-8 Young plants with haustoria. $\times 540$.
Fig. 9. Liberation of zoospore by a unicellular plant. $\times 540$.
Fig. 10. A female filament bearing oogonia. $\times 240$.
Fig. 11. Mature oogonium with mucilage protruding through the pore. $\times 540$.
Fig. 12. Filament beginning to form androgonidangia. $\times 540$.
Fig. 13. Androgonidangia formed. $\times 540$.
Fig. 14. Liberation of the androgonidia into the hyaline vesicle. $\times 540$.
Fig. 15. Androgonidia attached to the surface of the oogonium. $\times 540$.
Fig. 16. Oogonium with two antherozoids inside. $\times 540$.
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Oedogonium Nagii, sp. nov.

100-1000

100-1000

The Subaerial Algae of Barkuda Island, in the Chilka Lake, Ganjam District, Madras Presidency.

By KALIPADA BISWAS, M.A., *Government Research Scholar.*

At the invitation of the late Dr. N. Annandale, I paid a visit to Barkuda Island in the Chilka Lake in the middle of March, 1924, with a view to studying the algal flora of the Chilka Lake. A few bottles containing valuable materials had already been sent by Dr. Annandale to Dr. P. Bruhl, the University Professor of Botany, during the course of the year 1923. Dr. Bruhl was waiting for further material before setting to work, and it was in this connection that I gladly accepted the invitation of Dr. Annandale, with whom I spent a week in making a more or less thorough collection of the algae of the Chilka Lake and of Barkuda Island. This material is kept in the botanical laboratory of the University College of Science, Balliganj, Calcutta, to be gradually worked out by Dr. Bruhl and myself.

The physiography of Barkuda Island and other details have already been published in the Memoirs of the Asiatic Society of Bengal, Vol. VII, No. 4, pp. 257-319 under the title "Introduction to the study of the fauna of an island in the Chilka Lake," by Dr. N. Annandale. In this paper is also given a list of the plants found on the island, compiled by V. Narayanswami and H. G. Carter of the Botanical Survey. This list is almost complete as regards phanerogamic plants, but not so with regard to the cryptogamic flora. Thus under the head of Byrophytes no mention has been made of true mosses; but during the comparatively unfavourable season, during which I was there, I gathered at least one true moss. Algae and lichens are not mentioned in that list. The fungi found in a termite nest have been worked out by Dr. S. R. Bose, and the result was published in a short paper in the Records of Indian Museum, Vol. XXV, part II, pp. 253-258. A number of fungi, growing either as epiphytes or parasites on the leaves of many trees and shrubs of the island still remain to be worked out.

The island of Barkuda is to a large extent a semi-desert with high temperature, strong sunlight and comparatively low rainfall, and with more or less barren, rocky, sandy and gravelly soil. As temperature, shade and sufficient moisture are the main factors which control the occurrence of the subaerial algae we can naturally not expect a good harvest of this form of algae on this island. Indeed, the subaerial algal flora of Barkuda

island is much poorer in comparison with that of other parts of India. Yet, in spite of these unfavourable conditions there is an abundant growth of the algae in the island on soil, on roofs and on walls. Thus the algae can conveniently be divided into four well-defined groups: namely, (1) Soil algae, (2) Roof algae, (3) Wall algae, (4) Tree algae.

As my visit lasted only a very short time, I was not able to observe the behaviour of these algae throughout the year. Much, however, has been learnt in the laboratory regarding the mode of life of these algae from what is called "Raw Culture."

The most common alga that has been observed to grow on rocks, gravel and sandy pathways of the island is *Scytonema mirabile*. The pustules or the spreading black or brownish-black masses of this cosmopolitan species is one of the most prominent features of the subaerial algae which will attract the notice of any algologist as soon as he sets his foot on the island. This species is variable both as regards its form and its colour according to its adaptation to different situations: such as rocks, gravel, brickwalls and stony and sandy soil. Generally, this species is found in three forms, namely: crustaceous, tangled and prostrate forms. The first form is found on rocks and stones; and the last two on walls and sandy and gravelly soil and pathways. The colour of the sheath is of different shades of brown, but chiefly blackish-brown.

Associated with these algae are also sometimes found sparsely scattered superficial layers of *Porphyrosiphon notarisii* with its characteristic densely lamellose or fibrillose pink sheath. Closely adherent to the bottom layer of the filaments of *S. mirabile* are found two species of *Phormidium*, namely, *Phormidium fragile* and *Phormidium corium*. Near the mouth of a drain, on moist sandy soil were also found more or less pure growths of *P. fragile* and *P. corium*. In the dry season these layers of soil algae detach themselves in sheets along with a quantity of soil adhering to them. In this way these small sheets of dried soil are carried about the island by the wind, the algae passing through a period of drought in the hot weather. But with the advent of the rainy season they settle down in suitable places, when the hormogones come out of their sheaths, giving rise to a new generation and thus renewing their activities. The spongy and woolly texture of *S. mirabile* with its tough blackish-brown or deep brown sheath helps it to be carried about to different places, such as roofs, walls and soil, and makes it capable of adapting itself to different environmental factors.

The luxuriant growth of *Lyngbya calcifera* with its grayish-blue colour is a very common sight on the walls and pillars of the bungalow in the island. This alga is invariably present on the lime courses of the walls and pillars. Along

with this alga are also found interrupted black, velvety patches of *S. mirabile* gaining a foothold here and there.

The wall algae of this island are sometimes composed of three strata—viz. (i) a bottom stratum of *Gloeocapsa aeruginosa*, (ii) a middle stratum of *Gomphosphaeria aponina* var. *muralis* associated often with gelatinous mass of *Inactis pulvinata*; and a top stratum of *Lyngbya calcifera*. The first two layers form a sort of adhesive ground layer on the substratum for the growth of the third superficial layer of *L. calcifera*.

The roof algae are composed of various forms of *S. mirabile* and *Scytonema hojmanni*?. On the more exposed smoother part of the roof the plant masses form a crust of hard granular structure. But near the exits of the rainwater drains they are found to form brown pustules of a less deep hue with occasionally stray filaments of *Phormidium corium* and *Phormidium fragile*.

Tree algae were not found by me during the part of the year I visited the island. But lichens were found to grow on the bark of *Azadirachta indica* and *Anona aquamosa* with a green superficial powdery layer of *Protococcus* forming a constituent.

On the foreshore occurs an abundance of dead masses of algae, mostly marine, such as *Cladophora* sp., *Gracilaria confervoides*, *Prasiola* sp., a few species of Phaeophyceae and Rhodophyceae, Diatoms, *Lyngbya aestuarii* and others. The lower branches of *Pongamia glabra*, which remain under water during high flood level in the rains are festooned with plants of *Potamogeton pectinatus* and filamentous algae.

The subaerial algae that I have found in Barkuda Island are ten in number and are mentioned in the following list:

Myxophyceae.

Chroococcaceae.

Gloeocapsa.

- (1) *GLOEOCAPSA AERUGINOSA* (Carmichael) Kuetzing.
Kuetzing, Tab. Phyc., I. Pl. 21 fig. 2; De Toni, Syllg. alg. Myx. p. 55; Rab., Fl. Eur. Alg. II, p. 39; Cooke, Brit. Fresh. Alg. p. 207, Tab. LXXXIV, fig. 2; Hansg., Prodr. II, p. 153; *Haematococcus aeruginosus* Hass., Freshw. p. 333, n. 15. t. 82, fig. 3; Biswas, Kalipada, Flora of the Salt Lakes, Bengal, Pl. VI. fig. 1 (*in the press*).

Gomphosphaeria.

- (2) *GOMPHOSPHERIA APONINA* Kuetzing, var. *MURALIS*, var. nova.

Strato microscopico, bruneo vel bruneo-caeruleo, nonumquam aerugineo, saepe expallescente, solido; tegumentis bruneis, suberassis, plus minusve sublamellosis; cellulis clavatis, oblongis vel ellipticis vel cuneatis raro globosis vel lunatis, 10-14 μ longis, 6-8 μ latis, non pedicellatis, dichotomicè divisis, 2-32 vel etiam pluribus in familias globosas vel subglobosas, 15-50 μ latas consociatis; contentu granulato aerugineo-viridi vel pallide caeruleo-viridi. Habitat ad muros in insula Berkuda.

Colonies oval, spherical or ellipsoid, mucous, solid, 15-50 μ in diameter, brown, brownish-blue, or blue-green, becoming pale; sheath brown, rather thick, somewhat lamellöse; individual sheath rare, when present brown, cells club shaped, pear shaped, oblong-oval or elliptical, rarely globose or lunate, 10-14 μ long, 6-8 μ broad, *without any stalk, rarely surrounded by an individual sheath*; families consisting of 2-32 cells or more, often associated together; cell-contents coarsely granular, deep bluish-green.

On the walls of the Bungalow of Barkuda Island in the Chilka Lake. See Pl. I, fig. 1 (a-c)

This alga has so far been reported to occur in fresh water, mostly as a plankton alga. But this new variety with its characteristic brown sheath and non pedicellate cells, varies in dimension from typical specimens both as regards the dimensions of its individual cell as well as that of the colonies. This alga, mixed with the gelatinous sheath of *Inactis pulvinata* and sometimes *Phormidium fragile*, forms a sort of adhesive layer on the wall, often associated with *Lyngbya calcifera*.

Oscillatoriaceae.

Phormidium.

(3) PHORMIDIUM FRAGILE (Meneghini) Gomont.

Gomont. Monogr. Oscill., p. 183. Pl. 4, fig. 13-15; De Toni, Syll. Algar. Myx. p. 220; Tilden, Minnesota Algae, pp. 91, 93, Pl. IV, fig. 52-53.

Plant-mass mucous, more or less lamellöse with the filaments lying side by side, pale blue-green or yellowish green; filaments long, tenuous with the filaments of *Ph. corium*, sheaths gelatinous, fibrous, diffuent into mucus, hyaline, not becoming blue with chlorozine iodine; trichomes 1.2-2.5 μ in diameter, more or less flexous or somewhat parallel to one another, constricted at the joints; apex of trichome slightly tapering, apical cell subacutely conical, calyptra none; cells subquadrate or shorter than long 1.2 μ (1.2-2.3 μ) in length, cell contents almost homogeneous, see Pl. I, fig. 2 (a-c). Hab. on sandy moist soil, Barkuda Island.

(4) *Phormidium corium* (Agardh), Gomont.

Gomont, Monogr. Oscill., p. 192, Pl. 5, figs. 1, 2; De Toni, Syll. Alg. p. 235; Tilden, Minnesota Algae. p. 101, Pl. IV, fig. 71-72; *Lyngbya corium* (Ag) Cooke, Brit. Freshw. algae, p. 261, t. 6 II, fig. 2; Hansg. Prodr. II, p. 100; *Oscillaria corium* Ag.; Hass. Brit. Freshw. Alg. p. 252; *Hypheothrix rufescens* Rab., Fl. eur. Agl. II. p. 87; *Phormidium Boryanum* forma b. *flexuosa*, Rab. Fl. eur. Alg. II, p. 116.

Plant mass expanding, membranaceous, thin, blue-green; filaments long, strongly flexuous, entangled with the filaments of *Phormidium fragile*; sheaths thin, hyaline, papery; trichomes, 3-5 μ in width, straight, shortly tapering, not capitate; obtusely conical or rounded; calyptra none; transverse walls not granulated; cells equal or twice as long as broad, about 3-8 μ in length; cell contents granular, blue-green.

Hab. on sandy moist soil, Barkuda Island. See Pl. I fig. 3 (a-d).

Lyngbya.

(5) *LYNGBYA CALCIFERA* Brühl et Biswas, Journal of the Department of Science, Calcutta University, Vol. V, Commentationes Algologicae II, Algae Epiphyticae Epiphloiae Indicae or Indian Bark Algae by Paul Brühl and Kalipada Biswas, 1923, p. 12, Pl. IV, fig. 15, (a-f).

This alga is very common on walls and pillars along the lime-courses and other plastered portions of the bungalow in the Barkuda Island. But owing to its thick encrustation of Calcium carbonate on the thick sheath, it sometimes simulates false branching. The mode of its growth and the morphological feature of this species are still under investigation.

Porphyrosiphon.

(6) *PORPHYROSIPHON NOTARISII* (Mewgh) Kuetzing.

Tab. Phyc., Vol. II, p. 7, Pl. 27, fig. 1-4, 1850-1852; *Teytonema fuscum*, Zeller, in Journ. of As. Soc. of Bengal, Vol. XLII, paras. II, p. 182, 1873; Gom. Monogr., p. 331, t. xii, f. 1-2, 1892; De Toni. Syllg. Alg. Vol. V. Myxo. p. 314, 1907; Tilden, Minnesota Algae, p. 133, Pl. V. fig. 55, 1910; Journ. of the Dept. of Science, Calcutta University, Vol. V, "Indian Bark Algae," by Paul Brühl and K. Biswas, p. 13, Pl. IV, fig. 16, (a-c), 1923.

It is commonly mixed up with *Teytonema mirabile* and gives a reddish colour to the plant-mass formed mostly of *T. mirabile*.

Inactis.

(7) *INACTIS PULVINATA* Kuetzing.

De Toni. Syll. Alg. Myx. p. 350; Tilden, Minnesota. Alg.

pp. 146, 147, Pl. VI, fig. 11-13; Kuetzing, Tab. Phyc. I., p. 44, Tab. 77, fig. III, *Schizotherix pulvinata* Gom. Monogr. p. 298; Kuetz., Tab. Phyc. II. p. 25, t. 83. fig. II, Rab. Flora Euro. Alg. II, p. 223. *Inomeria Roemeriana* Kuetz. sp, p. 343; Tab. Phyc II, p. 25 & 83, fig. 1.

Plant mass crustaceous, associated with *Gomphosphaeria aponina* var. *muralis*, and *Lyngbya calcifera*, uneven, encrusted with Calcium carbonate, blue-green, zonate within; filaments long, rigid, flexuous, coalesced or closely agglutinated with one another, moderately branched; false branches adpressed, rarely bifurcating, about 4-10 μ . in width; sheaths papery, tapering into a somewhat pointed apex; trichomes 1-2 μ . in diameter, constricted at the joints, many within the sheath, sheath more or less finely fibrose; tranverse walls distinct; cells twice, sometimes thrice as long as wide, about 4-6 μ . in length; contents finely granular, blue-green.

On walls along the lime-courses associated with *L. calcifera*. See Pl. I, fig. 4 (a-d).

Microcoleus.

(8) MICROCOLEUS PALUDOSUS (Kuetzing) Gomont.

De Toni, Syll. Alg. Myx. p. 376; Tilden, Minnesota Algae, pp. 58, 158; Journal of the department of Science, Vol. VII. "Road slimes of Calcutta" by K. P. Biswas, 1925, p. 6, Pl. VII, fig. 17 (a-d).

This alga is found to occur in single filaments among the wall algae of Barkuda Island.

Scytonemataceae.

(9) SCYTONEMA HOFMANNI (?) Agardh.

De Toni. Syll. Alg. Myxo. p. 513; Tilden, Minnesota Algae, pp. 212, 216.

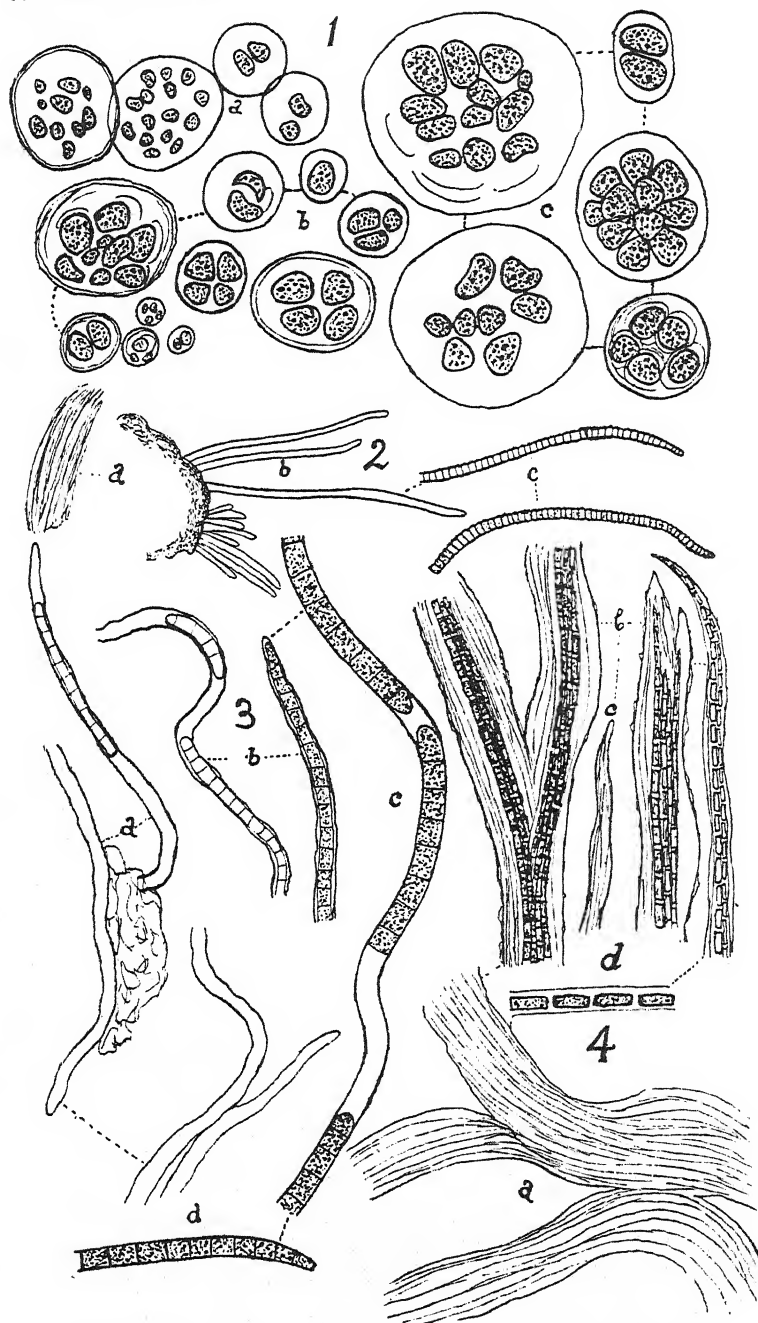
(10) SCYTONEMA MIRABILE (Dillwyn) Bornet.

De Toni. Syll. Alg. Myx. p. 517; Tilden, Minnesota Algae, pp. 212, 222-224; Brühl. P. and Biswas K. Indian Bark Algae, in the Journal of the Department of Science, Calcutta University, 1923, pp. 14-15, Pl. V, fig. 18 (a)-(b); Biswas K. P., Road Slimes of Calcutta, Journal of the Department of Science, 1926, p. 8, Pl. III, fig. 19 (a-c).

Growing everywhere in Barkuda Island.

My thanks are due to the late Dr. N. Annandale for his help and for giving me full facility for collecting algae from Barkuda Island and from the Chilka Lake. I am also especially indebted to Dr. P. Brühl, the University Professor of Botany, for his guidance in preparing this paper.

15th March, 1925.




K. P. Biswas, Del.

Algae of Barkuda Island.

EXPLANATION OF FIGURES.

PLATE 15.

- Fig. 1. *GOMPHOSPHAERIA APONINA* var. *MURALIS* var. *NOVA*.
(a) Colonies attached to one another; $\times 250$.
(b) Separate Colonies with different kinds of Cells;
 $\times 350$.
(c) Separate larger colonies; $\times 400$.
- Fig. 2. *PHORMIDIUM FRAGILE*.
(a) plant mass; $\times 50$.
(b) filaments attached to the soil particles; $\times 500$.
(c) Parts of filaments with articulation; $\times 750$.
- Fig. 3. *PHORMIDIUM CORIUM*.
(a) filaments and empty sheaths attached to the soil
 particles; $\times 500$.
(b) parts of filaments showing the trichomes; $\times 600$.
(c) parts of filaments with trichomes; $\times 850$.
(d) part of a trichome; $\times 850$.
- Fig. 4. *INACTIS PULVINATA*.
(a) plant mass; $\times 400$.
(b) parts of filaments with trichomes; $\times 500$.
(c) part of the empty sheath of a filament; $\times 300$.
(d) part of a trichome; $\times 800$.
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Liesegang Rings.

By D. NAMASIVAYAM.

(Read before the Indian Science Congress, 1923.)

ONE of the striking chapters in any book on "Colloids" is the one dealing with the formation of stratified precipitates in gels—commonly called Liesegang Rings. This is interesting also from the geologist's point of view, as the beautiful stratified coloration in agate and other rocks is believed to be an instance of Liesegang Rings in Nature's Laboratory.

Summary of my experiments with agar-agar gel in Capillary-tubes.—Agar-agar was cut up, washed and soaked for two hours and dispersed over a water bath for two hours. At the laboratory temperature of 25°–27°, 3% agar-agar sol worked very satisfactorily. A few drops of saturated copper sulphate solution were added to the agar-agar sol and stirred up.

Capillary tubes (open at both ends) filled with the mixture were placed immersed in dilute ammonia solution. The following figure (Fig. 1) indicates the result obtained.



Fig. 1.

Alternate pale-green and dark blue stratification occurred. It was noted in every case that the central band (*i.e.*, the band in the middle of the tube) was a pale-green one. Of

course it is obvious that the bands would be symmetrically placed about the centre, but it is not quite so obvious why the central band should always be a green one in as much as the symmetry could be obtained even with a central dark band.

Tubes of the following form (Fig. 2) were used to get the effect of diffusion of ammonia through one end only in a capillary. It was noticed that a sharp boundary was formed at the bottom of each dark band. I also observed that in capillaries the strata formed were much broader than those obtained in test tubes.

Summary of my experiments with gelatin film on glass plates.—I then tried silver chromate rings in gelatin on glass plates. The brand of gelatin used required swelling for 2-3 hours and heating on a water bath for 3 hours and an addition of a few crystals of citric acid before any formation of rings could be obtained; 20% gel worked best at a



Fig. 2.

laboratory temperature of 28° – 30° C. During the formation of rings I always noticed an outer edge of one or two colourless rings which became coloured in course of time while a further similar colourless stratification developed at the outer edge. The gelatin film on glass left standing for some months showed by reflected light concentric bands of coloration, each band ranging over a number of stratification: the central band was green, successive ones being yellow, white, blue and red.

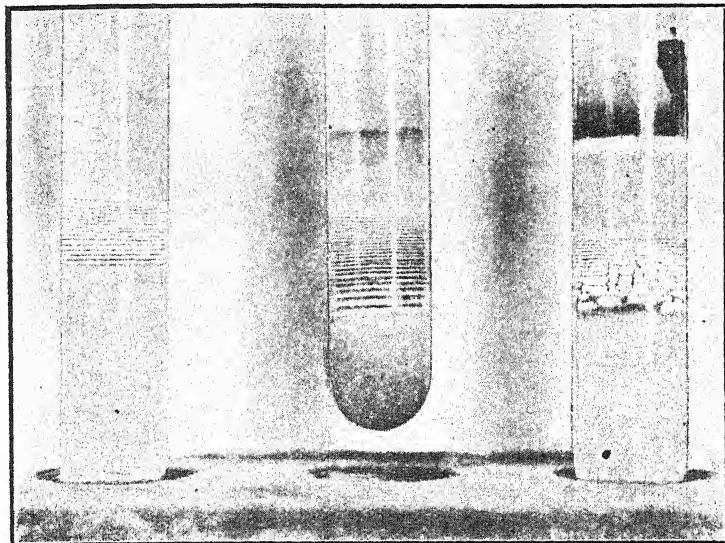
Attempts at an explanation of the phenomenon.—Various views have been expressed as to the mechanism of the formation of these rings or stratification. But none of these is accepted as tenable: the real cause of this phenomenon is yet unknown. Many of these explanations do not take into consideration the part played by the gel. The two views that are noticed in text books are (1) a super-saturation theory and (2) an adsorption theory. From among the many views previously expressed, I shall quote only two—(1) Fischer and McLaughlin (Koll. Z. 1922, 30, 13–16) believe that true semi-permeable media are solvated and when they become less solvated holes appear through which the dissolved substance can diffuse and go to form the ring; (2) Bradford thinks that attractive forces brought into play by adsorption are the cause.

It appears to me that the ring formation is essentially brought about by the movements of the charged colloid particles. It is probable that owing to preferential adsorption a front of one kind of charged particles may be maintained during the diffusion of the reacting liquid. Or it is not unlikely that such a front may result from the difference in the diffusion rates of the ions of the reactant. This will push the similarly charged particles of the gel forward and crowd them to a point at which they get precipitated and form a ring with which the diffusing fluid subsequently reacts and produces a ring of precipitate.

Experiments to test the validity of this view with the help of electric and magnetic fields were begun, but for want of sufficiently strong fields further study has been suspended.

Summary of my experiments with agar-agar gel in test tubes.—I may perhaps give here an account of the results obtained with agar-agar in test tubes. A number of combinations of reactants were tried. Only the following pairs of reactants gave rings: Ammonia and copper sulphate, ammonia and copper nitrate, sodium sulphide and copper sulphate, ammonium dichromate and lead acetate, sodium carbonate and lead acetate, ammonium carbonate and lead acetate. In each case the second mentioned reactant was mixed with the gel. It must be noted that when the experiments were carried out *vice versa* no rings were obtained. I show below the photograph obtained in this connection. The central test tube represents the ammonia copper sulphate rings; the one on the

left represents ammonia-cupric nitrate-rings ; and that on the right sodium hydroxide-ammonium chloride copper sulphate-rings. I also observed that ammonia diffusing through the gel



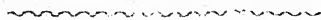
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Fig. 3.

D. N.

containing sodium chloride and copper sulphate gave fine vanishing rings.

I wish to thank very sincerely Professor W. Erlam Smith for valuable suggestions during the course of my work.

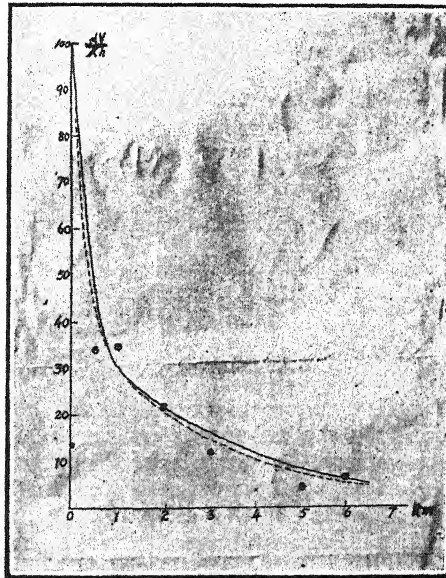




The Earth's Electric Field and the Vertical Potential Gradient.

By SATYENDRA RAY, M.Sc., B A., *Lecturer in Physics.*

The curve giving the variation of the electric potential gradient with height above the earth's surface, taken from Graetz's *Handbuch der Elektricitat und des Magnetismus*, Vol. III, p. 252, if turned round so that the axes of x and y are inter-changed, strongly suggests an exponential curve. The potential of the earth's electric field certainly falls much more rapidly with height than would be expected with a radial field. With the radial field the potential gradient at 7 km height would practically be the same as at the earth's surface and the graph should be a straight line parallel to the x axis



Also in the diurnal variation of the potential gradient two interesting facts have been discovered from observations, *viz.*, (1) that the variation follows very nearly the variation of the atmospheric pressure, and (2) that it also follows the variation of the atmospheric "pollution." (See an interesting article by Dr. C. Chree in the *Meteorological Magazine*, 1921. Also Chree and Watson on *Atmospheric Pollution and Potential Gradient at Kew Observatory*. P.R.S., 105, p. 311, 1924.)

Elster and Geitel postulate a continuous flow of negative ions from within the earth's surface to meet and neutralise continuous flow from air of positive ions so as to keep the earth's surface at the same potential. The parallel variation of the atmospheric pressure and the potential gradient then explained

as being caused by a variation of the outward flow of the ions from under the earth's surface on account of the variation of the atmospheric pressure. The change in the potential gradient according to the second law, *viz.*, with change in the amount of atmospheric "pollution" has, however, not yet been directly connected with the first variation.

Now in an atmosphere which is at rest and at the same temperature throughout, the pressure varies with height according to the law

$$p_h = p_o e^{-\frac{h}{k}} \quad (1)$$

where p_o is the pressure at the earth's surface and k connects the pressure with density of the atmosphere through the relation

$$p = k\rho.$$

We can therefore write

$$\rho_h = \rho_o e^{-\frac{h}{k}} \quad (2)$$

which is an exponential law.

From relation (2) it follows at once that the density gradient $g = \frac{d\rho}{dh}$ will change with height above the earth's surface according to another exponential law

$$g_h = g_o e^{-\frac{h}{k}}. \quad (3)$$

If, therefore, we could assume the potential to be proportional to the density of air smoke and water particles in the atmosphere, the variation of the potential gradient with pressure as well as "pollution" could be attributed to an identical cause.

If we made this assumption an atmosphere at rest and at uniform temperature and having its pressure and density varying according to equations (1) and (2), would have its potential vary with height according to the relation

$$V_h = V_o e^{-\frac{h}{k}} \quad (4)$$

and its potential gradient according to a similar relation

$$\frac{dV}{dh} = G_h = G_o e^{-\frac{h}{k}}. \quad (5)$$

In the table given below the values of G or $\frac{dV}{dh}$ from Schweidler and Kohlrausch is given for different values of h in column 2. In column 3 the values of y are obtained from the equation $y = 50e^{-37h}$ by putting $G_o = 50$ and $1/k = 0.37$. Seeing that Schweidler and Kohlrausch's curve is built up of averages

and that the atmosphere is neither at rest nor at uniform temperature the agreement is exceedingly good. In fact in the curve given by Schweidler and Kohlrausch the portion between 0 and 1.5 km is given in dotted lines as the curve in this region is uncertain. Another exponential curve falling more rapidly with height so as practically to come to zero value at 1 km would remove the discrepancy near the surface given by the values of y in the 3rd column. Columns 4 and 5 are obtained from two such exponential formulæ, viz., $y_1 = 40.4e^{-.3363h}$ and $y_2 = 59.6e^{-3.75h}$. Column 6 gives us $G' = y_1 + y_2$ and column 7 gives the difference $G-G'$. In the fig. the dotted curve is obtained by the superposition of the curves $y_1 = 40.4e^{-.3363h}$ and $y_2 = 59.6e^{-3.75h}$. An examination of Schweidler and Kohlrausch's curve will show the difference in column 7 is quite within the limits of experimental errors.

| h | G or dV/dh | y | y ₁ | y ₂ | G' | G-G' |
|------|---------------|-------|----------------|----------------|--------|-------|
| 0.00 | 100.00 | 50.00 | 40.40 | 59.60 | 100.00 | 0.00 |
| 0.25 | 71.52 | .. | 37.14 | 23.27 | 60.41 | 11.11 |
| 0.50 | 50.25 | 41.60 | 34.15 | 9.11 | 43.26 | 6.99 |
| 0.75 | 35.00 | .. | 31.39 | 3.57 | 34.96 | 0.04 |
| 1.00 | 30.15 | 30.5 | 28.86 | 1.41 | 30.27 | -0.12 |
| 1.25 | 26.67 | .. | 26.53 | 0.56 | 27.09 | -0.42 |
| 1.50 | 25.05 | 28.7 | 24.39 | 0.22 | 24.61 | 0.44 |
| 1.75 | 22.93 | .. | 22.41 | 0.08 | 22.49 | 0.44 |
| 2.00 | 21.61 | 23.8 | 20.61 | 0.03 | 20.64 | 0.97 |
| 3.00 | 16.22 | 16.5 | 14.73 | .. | 14.73 | 1.49 |
| 4.00 | 11.62 | 11.4 | 10.52 | .. | 10.52 | 1.10 |
| 5.00 | 8.08 | 7.8 | 7.51 | .. | 7.51 | 0.57 |
| 6.00 | 5.75 | 5.4 | 5.37 | .. | 5.37 | 0.38 |
| 6.50 | 5.00 | .. | 4.54 | .. | 4.54 | 0.46 |

The vertical potential gradient may then be looked upon as due to a pollution effect of coarser particles of suspended dust smoke and water near the earth's surface, together with another effect due to lighter "ions" in the earth's atmosphere, both the coarser particles and the lighter ions settling down under gravity according to equations of the form (2). The dipole¹ field caused by the earth's rotation would only produce a drift of the coarser particles and the lighter ions in the direction of the force and in opposite senses according to the sign of the charge on the particles and ions. Elster and Geitel's hypothesis may here be invoked for the flow of ions through the body of the earth.

That matter particles have an intrinsic electric density, as assumed here, is more than probable. That Helmholtz's theory of cataphoresis fails if this density is assumed to be zero has been pointed out by the author² and L. St. C. Broughall in *Phil. Mag.*

¹ See "A Note on Reeves's Experiment" by Satyendra Ray in the *Geographical Journal* October, 1922.

² Über eine Quantenbeziehung in der Maxwellschen Lichttheorie, *Zeit. f. Phys.* 1921, VIII p. 144.

XLI p. 872 has proved mathematically that atoms are not neutral.

15th November, 1924.

1. *Replies to criticisms at the Science Congress, Benares.*

Another point of view from which we may regard the earth's electric field is given by Poisson's equation which for a radial field reduces to the form

$$\frac{d^2 V}{dh^2} = 4\pi\rho.$$

As $\frac{dV}{dh}$ is experimentally equal to $40.4 e^{-.3363 h} + 59.6 e^{-3.75 h}$

$$\frac{d^2 V}{dh^2} = 40.4 \times .3363 e^{-.3363 h} + 59.6 \times 3.75 e^{-3.75 h}$$

which is the equation of two atmospheres, one of heavier particles suspended in air and the other of lighter gas molecules settling down under gravity.

Sir J. J. Thomson in "The Electron in Chemistry" gives us the value of the nuclear charge necessary to keep in stable equilibrium n electrons in the following table :—

| | | | | | | | | | |
|-------|----|-------|-------|-------|-------|------|------|----|-----|
| n | .. | 1 | 2 | 3 | 4 | 6 | 8 | 12 | 20 |
| E | .. | .. | .75 | 1.58 | 2.44 | 4.8 | 7.6 | 13 | 30 |
| Diff. | .. | -1.00 | -1.25 | -1.42 | -1.56 | -1.2 | -0.4 | +1 | +10 |

It will be seen none of the atoms need be strictly neutral and the electric density as determined from Poisson's equation being found to vary with height in exactly the same manner as the mass density in the atmosphere varies according to the Kinetic Theory of Gases may be taken as proof of the molecules of air being intrinsically charged.

In the above an average value of k has been found for the coarser particles and the air molecules. If the value of k for each constituent of air, as well as of the atmospheric pollution be taken with their proper signs, an even closer fit with the experi-

mental values of $\frac{dV}{dh}$ than that exhibited here may be obtained.

Thanks of the author are due to the Engineering Department of the Benares Hindu University for the lantern slide reproduced above.

14th January, 1925.

**¹Microscopic Study of the Old Copper Slags at
Amba Mata and Kumbaria, Danta State,
N. Gujarat, India.**

By H. L. CHHIBBER, M.Sc., *Asstt. Professor of
Geology, Benares Hindu University and Rangoon University.*

(Communicated by DR. S. L. HORA.)

I. INTRODUCTION.

During the geological survey of the northern part of Danta State² abundant slag-heaps were discovered at Amba Mata and Kumbaria. Amba Mata ($24^{\circ} 20' N.$ Lat. and $72^{\circ} 54' E.$ long.) is about 14 miles from the Abu Road Railway station on the B.B. and C.I. Ry. and is a noted place of pilgrimage. Extensive slag-heaps are to be seen round the town on all sides. The town itself, it appears, is built on the slag-heaps, because wherever ground is dug for building purposes, slag is exposed in large quantities. Kumbaria ($24^{\circ} 19' N.$ Lat. and $72^{\circ} 55' E.$ long.) lies to the south of Amba Mata at a distance of about 2 miles, and there also the slag is very widespread. The slag is evidently copper slag as undoubted pieces of associated native copper, copper-matte and its green carbonate are to be seen in it.

The two places (shown on the accompanying sketch map, Plate 3) mark two metallurgical centres where copper was extracted in very large quantities in the past, as may be conjectured from the amount of slag and the debris-heaps found in the vicinity.

There is no means of telling the exact date of these operations. The inhabitants of the place are aware of the significance of the slag, which they call 'katehra' in their own vernacular, but they have no idea as to when the extraction of copper was carried out. The Jain temple at Kumbaria is more than 600 years old. Even the famous temple at Amba Mata, from which the town derives its name, and which is believed to be very old, stands on these slag-heaps. The industry, therefore, dates back to ancient times, and the extraction of copper has for long entirely ceased. Ball in his paper³ shows that the Seraks (Aryan Brahmins)

¹ Read at the Indian Science Congress, Benares, 1925. Vide Abstract of Papers, Asiatic Society of Bengal.

² K. K. Mathur and H. L. Chhibber: The Geology and Mineral Resources of the Northern part of Danta State, Mahikantha Agency, N. Gujarat.

Report XII. Indian Science Congress, Benares, January, 1925.

³ *Proc. Asiatic Soc. Bengal*, June, 1869, p. 170.

worked the copper deposits of Singhbhum and the furnaces there have been assigned a minimum age of 700 years and the same author believes that they might be still older. This agrees more or less with the age of the Jain temple at Kumbaria. It is very likely that the people who were engaged in these mining and metallurgical pursuits were also the architects of the temples at Amba Mata and Kumbaria.

All the ore used by the ancients was mined from the copper-deposit towards the north of the town of Amba Mata, the outcrop of which is shown on the sketch map accompanying the paper on the "Metamorphic Rocks and Minerals of the copper-deposit near Amba Mata" by the present writer.¹ It is mentioned in the paper cited above² that there is a hopeful prospect of renewing the activity of the ancients. From the shallow pits seen in the area, it appears that they have not worked very far below the surface. Probably they were obstructed by water for which they had no pumping arrangements and they mostly worked the low-grade minerals of the oxidized zone. They could afford to do so because the small quantity of copper produced provided sufficient for their maintenance as living was very cheap in those days and their wants were few. Moreover, excepting their own labour they had not to make any kind of investment on installation of plant, machinery, etc. It will be well to quote the words of Bauerman,³ used in connection with the ancient copper-deposits of Aden: "There are no inscriptions or any other guide to the probable date of these workings; but it is evident from the extraordinary poor character of the ore, that they must belong to a very early period, when metals were of nearly uniform value, owing to the production being confined to a few localities. Judging by the present conditions of mining economy it may be fairly said that no such deposits could possibly be worked now, unless the value of copper was to be raised to several times that of gold."

II. MEGASCOPIC CHARACTERS OF THE SLAG.

The colour of the slag varies from light grey to iron black. It is very compact, fine-textured and breaks with conchoidal fracture. Its hardness is 5.5, as with some pressure it can scratch an apatite crystal; and the average specific gravity is 3.50. The lustre varies from sub-metallic to resinous. On the addition of dilute as well as concentrated hydrochloric acid it gelatinises with slight evolution of H_2S , pointing to the presence of a little free ferrous sulphide.

¹ To be published shortly in India.

² Matthur and Chhibber, *op. cit.*

³ *Quart. Jour. Geol. Soc.*, Vol. XXV, pt. 1, 1869, p. 17.

III. MICROSCOPIC CHARACTERS OF THE SLAG.

The grain as seen in the different micro-slices is variable. Glass is frequently present in most of the sections but a few are almost wholly crystalline. But no section is wholly composed of glass, showing that the very composition of the basic material tends towards crystallisation, however rapidly it cools, a phenomenon commonly observed in basic igneous rocks. The thin section D/322¹ (see fig. 1) is seen to contain phenocrysts of olivine and spinel. Olivine is colourless with high relief, marked cleavage cracks and inclusions of magnetite. It occurs in squarish or elongated prismatic sections or in aggregated groups while some of the crystals show quite characteristic outlines with acute terminations, as illustrated in figure 2. It shows high interference colours, bright green, pink and blue of the second order with straight extinction. It does not differ, therefore, from the normal olivine of basic igneous rocks. Spinel varies from a grass-green colour with a bluish tint to colourless. The colour is due to the presence of copper and the variety is chlorospinel. It has no good cleavage but it is traversed by irregular cracks. It occurs in octahedral, rounded or sub-angular sections. The index of refraction is very high as shown by the high relief of the mineral. It is isotropic. These two minerals are embedded in a pale yellow glassy base in which magnetite and ilmenite (?) are scattered about both in regular crystals and in skeletal, dendritic, and rod-like forms, as shown in fig. 3. These crystallites of magnetite are arranged in peculiar groups. Some sections show an interesting growth of arborescent crystallites of magnetite and olivine from a central rod-like nucleus of magnetite, which was the earliest mineral to separate.

Another section D/321 shows phenocrysts of diopside, olivine, spinel and some pseudomorphs. Diopside is colourless with a pale yellow tinge. It shows a good prismatic cleavage but a few sections show octagonal idiomorphic outlines with a double cleavage crossing at angles of 87° and 93°. It encloses in places, wholly or partially, crystals of olivine thus simulating the poecilitic structure of basic igneous rocks. It contains many inclusions of magnetite. It shows strong birefringence with an extinction angle varying from 37° to 47°. It appears that some of the sections are of diopside and others of augite. The olivine in this rock shows idiomorphic outlines with acute terminations and a tendency to zoning and secondary outgrowth. The crystal was at first rectangular; round the original rectangle secondary outgrowth has taken place and the terminal

¹ The numbers given in this paper are those borne by the specimens and the micro-sections in the Geological Museum, Benares Hindu University.

planes have developed as shown in fig. 4. Crystals of olivine are mutually interpenetrant one with another or with augite showing that crystallisation was arrested on account of rapid cooling and therefore the crystals could not release themselves from one another. Some of the sections show simple twinning and parallel growth. Besides these minerals there are irregular pieces of grayish material round which numerous minute crystals of olivine have sprung up. The white opaque material as seen in reflected light appears to be secondary leucoxene resulting from the decomposition of ilmenite. This view is supported by the presence of iron-ores in the interior of the pseudomorphs.

In the slide D 325 skeletal, feathery and swallow-tailed crystals of olivine of various shapes are to be seen, as depicted in fig. 5. In most cases the border is clear and the interior filled with glass. This shows that the crystallisation began on the surface but it could not be completed on account of very rapid cooling, so the interior was filled with glass. Spinel encloses small and large inclusions of olivine, therefore, the interior of the crystals appears doubly refracting.

The section D 329 shows phenocrysts of olivine, diopside and spinel. But in addition to these, which have been noticed before, a colourless mineral is present which occurs in tabular, octagonal or rounded sections, has a marked relief, distinct cleavage and encloses euhedral inclusions of olivine. It shows low birefringence, viz., grey colours of the first order. There is also a tendency towards cruciform twinning. It is uniaxial. All these characters suggest that the mineral is melilite. Das-Gupta¹ has observed this mineral in the slag from Kulti and by comparison has drawn the conclusion that Fouqué also was dealing with melilite in the blast furnace slag from St. Nazaire. The euhedral inclusions of olivine shows that it crystallised first and melilite afterwards proving that the slag was richer in magnesia than in lime. Brown, rounded sections of biotite are also to be seen in this slice. Some of them exhibit distinct hexagonal outlines. There is a rim of minute crystals of olivine round these sections. Vogt² of Christiana, has discovered mica in melilite slag from the Konigin Maria Iron works at Zwickau in Saxony and he regards this variety of mica as belonging to the biotite series. Vogt has also discovered mica in slags from Kafveltrap Works in Orebro, and from the Garpenberg Works in Sweden. My observations do not confirm the doubt of Rammelsburg who calls in question the formation of mica in slags. I have examined this mineral in more than one of my micro-sections.

The section D/311 shows a reticulated aggregate of elong-

¹ *Jour. Asiatic Soc. Bengal*, New Series, Vol. VIII, 1912, pp. 401-402.

² *Journ. Iron. and Steel Inst.* 1889 (No. II, p. 412).

ated and slender prisms of olivine and pyroxenes. The two minerals are intimately intergrown and mutually penetrating, pointing to their rapid and simultaneous crystallisation. The stellate groups of olivine and pyroxene crystals are to be seen as shown in fig. 6. Some of the pyroxene crystals are of enstatite with straight extinction and low polarisation colours, while others are of diopside as described before. None of the sections of olivine or pyroxene possess idiomorphic outlines because of the contemporaneous crystallisation of the two minerals. This indicates that the slag was at first in a very fluid state in which free molecular movement was possible but it cooled with such rapidity that the crystallisation of the minerals was arrested and consequently they could not have very sharp and idiomorphic boundaries. Round the magnetite granules a colourless zone¹ has been formed which shows that magnetite in the act of crystallisation has drawn the colouring matter out of the base. The glassy ground-mass is pale brown in colour and appears white by reflected light. The grain of this is larger than that of the previously described sections.

In D/70 highly elongated slender prisms of olivine and thick plates of lime-felspar, probably anorthite, are to be seen. The latter shows grey polarisation colours, extinction angle 58° , with rather wedge-shaped inclusions of magnetite, giving it a superficial appearance of polysynthetic twinning. Here the microlites and crystallites (Margarites, trichites, and longulites) of olivine show arborescent, spherulitic and fan-shaped growths, as shown in figs. 7 and 8, comparable to that of augite in the pitch-stones of Arran.² There is little glass and the base is almost wholly composed of these crystallites and microlites. The curved aggregates (fan-shaped brushes) show wandering extinction due to the difference in the orientation of the crystal-axes (Ether-axes) of the different microlites. In some cases on account of rapid cooling half of the crystal is composed of microlites and the other half is normal. The base is greenish black in colour but appears whitish by reflected light.

The thin section D/361 is seen to contain phenocrysts of olivine, some pyroxene, melilite, biotite, etc. Besides these minerals circular grains of metallic copper and copper-matte are also to be seen. Olivine does not deserve any special mention here. The pyroxene occurs in either hypidiomorphic or prismatic plates, and is of yellowish-green colour with inclusions of metallic copper and iron ores. It shows prismatic cleavage and is slightly pleochroic. The extinction angle is 31° with the polarisation colours of the second and third order. All these characters agree most closely with those of the triclinic pyrox-

¹ *Records, Geol. Surv. India*, Vol. XVI, Pt. 1, C. A. McMahon, On the Basalts of Bombay.

² Allport, *Geol. Mag.* Decade 1, Vol. IX, 1872, p. 2.

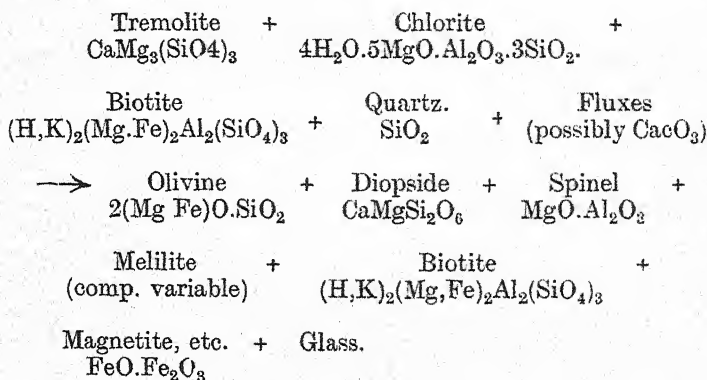
ene, babingtonite. Moreover, this mineral has been recorded from the furnace-slugs by Vogt¹ and others.

It is noteworthy that in this section flakes of biotite are seen intergrown with melilite crystals traversed by cracks (see fig. 9); probably the two minerals crystallised out contemporaneously. Besides these colourless flakes of a mineral with fine cleavage and moderate refractive index and straight extinction are to be seen. The general appearance is strongly suggestive of muscovite but one hesitates to say definitely that this mineral is present in the slags.

The hemicrystalline yellowish green base is charged with numerous extremely small grains of olivine, pyroxene and iron ores with a little metallic copper. The base appears whitish by reflected light.

IV. CONCLUSIONS.

It will be observed that olivine, spinel, diopside, babingtonite, enstatite, mica, melilite, lime-felspar (anorthite ?) mica and magnetite are the minerals that have crystallised in this slag. The presence of olivine in various shapes in each slice is remarkable. Evidently the composition of these minerals and the slag is highly basic, rich in magnesia, iron and calcium and poor in silica. The raw material for these minerals came from the gangue minerals and fluxes. The gangue minerals, as remarked before, were tremolite, chlorite, quartz, etc. The general mineralogical changes that have taken place may be expressed as follows:—



The order of crystallisation of these minerals is as follows:—Iron-ores, olivine, enstatite, spinel, diopside, biotite, melilite and others. This order is strictly dependent on the chemical composition of the average mass. Olivine and iron-ores were the first

¹ *Op. cit. sup.*

members to crystallise indicating that the slag was supersaturated with magnesia and iron as further shown by the presence of spinel. After the formation of these minerals the mother liquor contained enough alumina and alkalies, which along with magnesium-iron-silicate, entered into the formation of biotite. Finally the mother liquor became richer in lime than in magnesia and melilite was the product. In the slide D/311 where olivine and diopside have simultaneously developed, the proportion of magnesia and lime was in eutectic ratio. Such a conclusion is in accordance with the facts observed under the microscope.

In conclusion a word about the fuel and fluxes employed in the extraction of copper will not be out of place. The fuel used was forest wood which abounds in the vicinity. This fact was observed because pieces of charcoal were found embedded in certain vesicular pieces of slag. Regarding the flux the ancients must have made use of the pure white marble found in the neighbourhood. The supply of marble for the purpose is unlimited.

It must be concluded that the people engaged in these pursuits possessed a high degree of metallurgical skill as can be judged by the thorough extraction of copper from the ore. A sample of slag comparatively rich in copper gave on analysis only 0.43% of the metal. Considering the primitive means at their disposal, they deserve all the more credit. The temples at Amba Mata and Kumbaria, as already remarked, bear testimony to a considerable skill in architecture as well. Hence the age when these operations were in progress marks an era of Indian Civilization.

In conclusion the author wishes to thank Professor K. K. Mathur of the Benares Hindu University; Mr. D. N. Wadia of the Geological Survey of India and Professor L. Dudley Stamp of the University of Rangoon for their valuable advice and criticism and also for checking some of the microscopic determination of minerals.

Since this was written, microscopic study of some of the Indian slags is in progress in the laboratory of the Department of Geology and Geography, University of Rangoon; these include (1) Copper slags from Rakha Mines, Singhbhum district (both recent and old), (2) Iron slags from Tata Iron and Steel Works, Jamshedpur, (3) Iron slags from the neighbourhood of Mount Popa, Myingyan district, etc., etc. This communication may therefore, be taken as the first instalment of a series of papers on Indian slags.

EXPLANATION OF PLATES.

- Fig. 1.—Showing the phenocrysts of Spinel (S) and Olivine (O) with magnetite. Slide No. D 322. x35.
- Fig. 2.—Idiomorphic crystal of Olivine.
- Fig. 3.—Aborescent and dendritic crystals of magnetite.
- Fig. 4.—Rectangular crystal of Olivine. showing zoning and secondary outgrowth.
- Fig. 5.—Skeleton, feathery and swallow-tailed crystals of Olivine. The interior is filled with glass indicated by greyish tint. Slide No. D 325. x about 250.
- Fig. 6.—Reticulated and stellate groups of olivine and augite crystals with granules of magnetite. Slide No. D 311. x35.
- Fig. 7 and 8.—Long needles of Olivine with variously-shaped microlites and crystallites of the same mineral. Slide No. D/70. x35.
- Fig. 9.—Sketch showing the intergrowth of biotite and melilite. Slide No. D 361, M: melilite; B: biotite.
- Fig. 10.—Sketch-map showing the occurrence of slag-heaps at Amba Mata and Kumbaria.

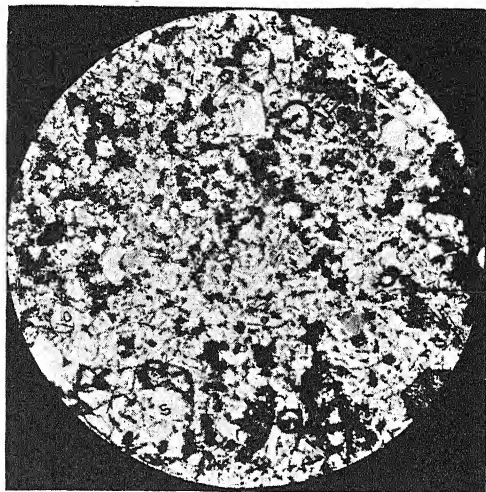


Fig. 1.



Fig. 2.

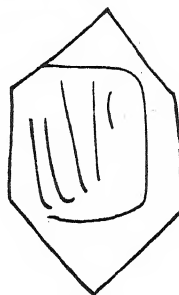


Fig. 4.

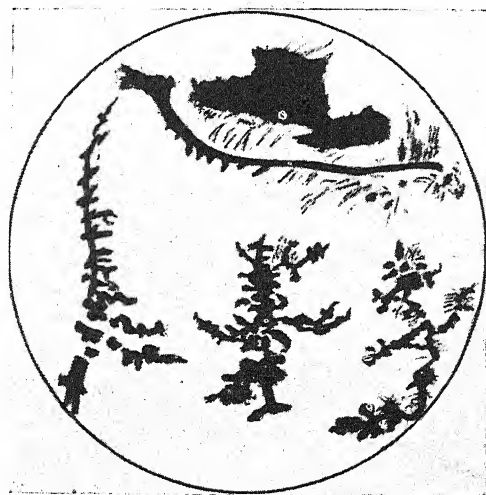
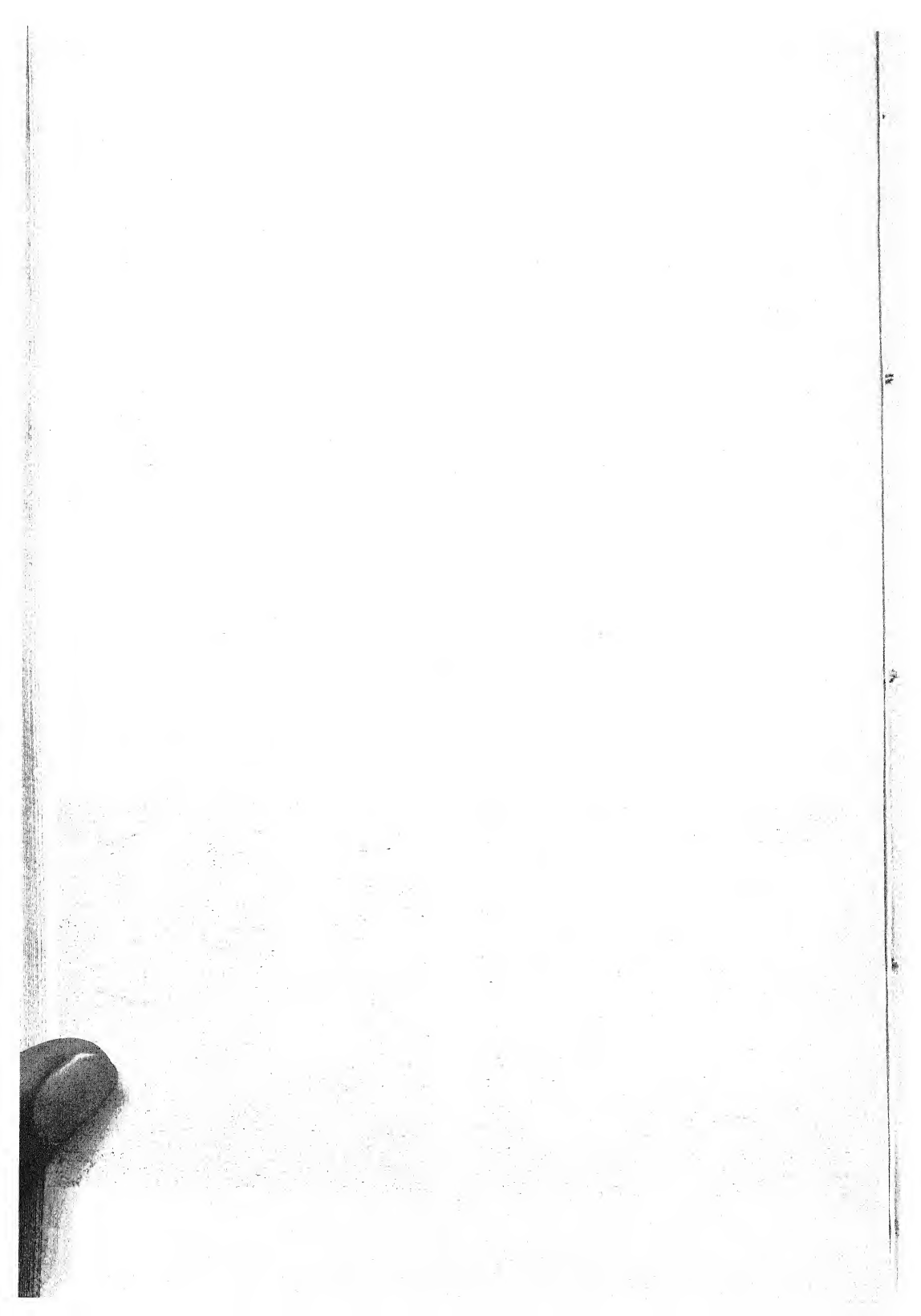


Fig. 3.



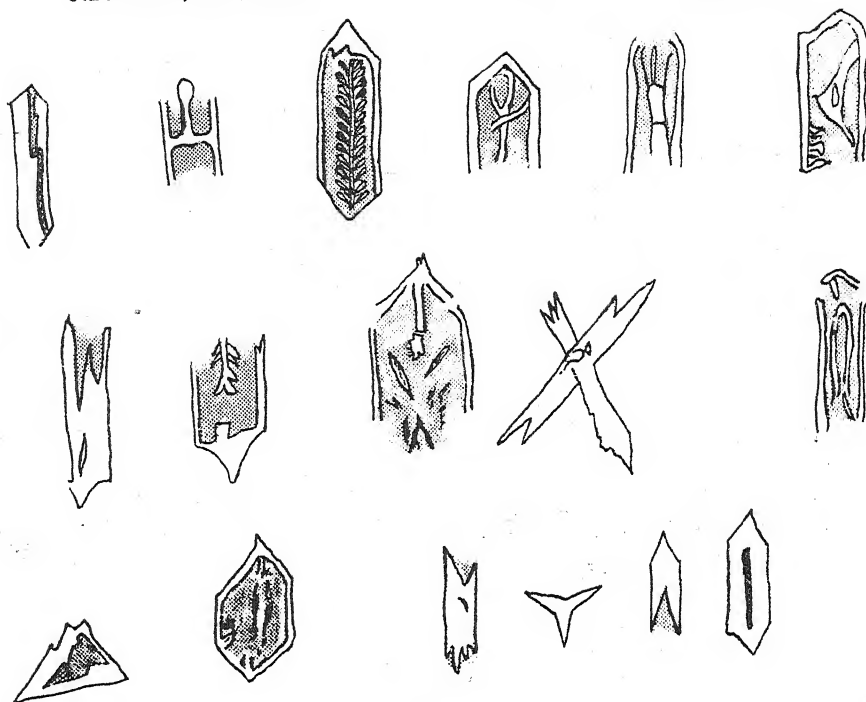


Fig. 5.

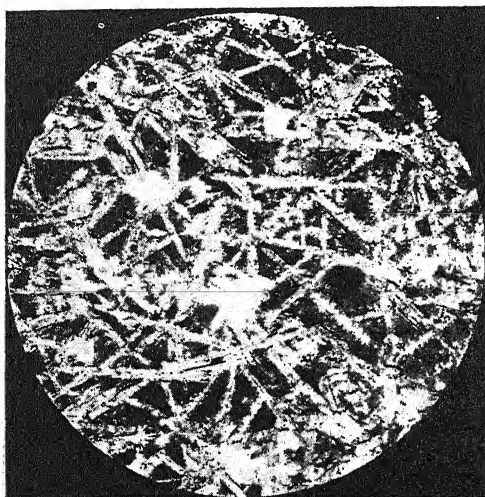


Fig. 6.

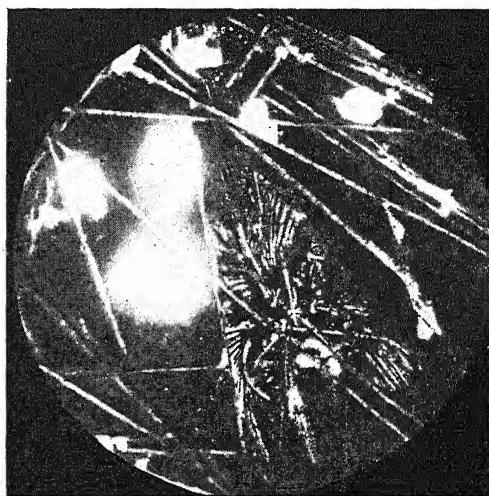


Fig. 7.

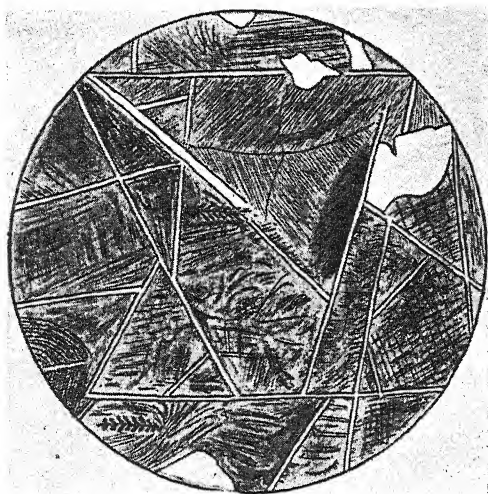


Fig. 8.

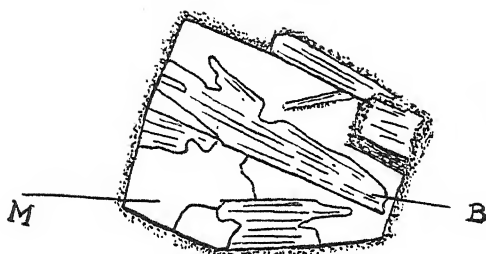
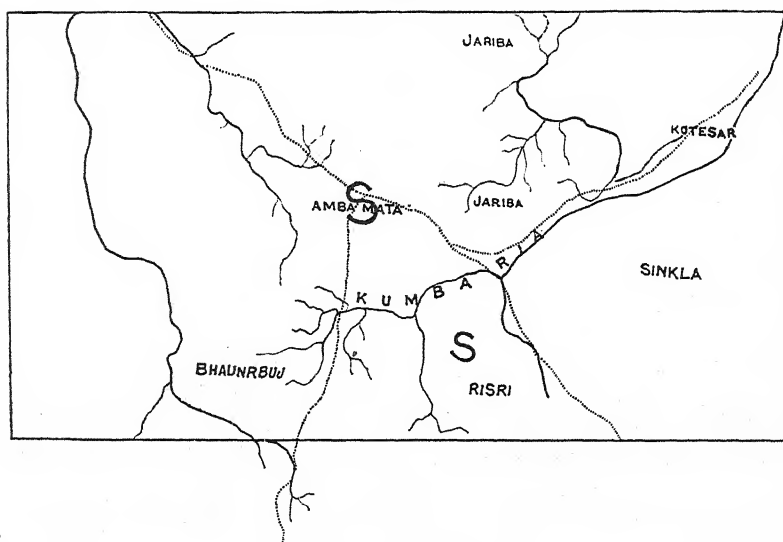


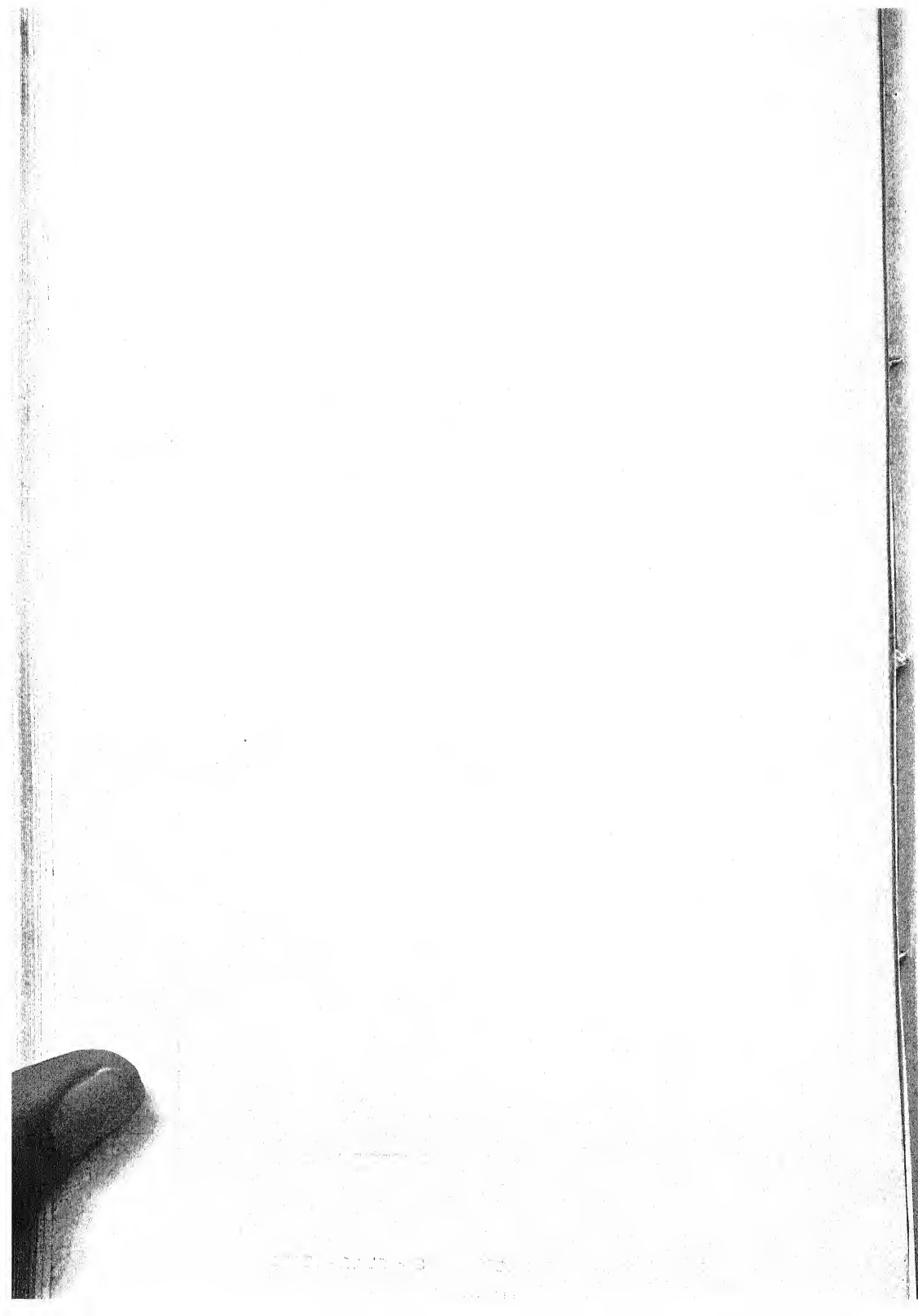
Fig. 9.



INDEX: = ROADS.

S = SLAG-HEAPS.

Fig. 10.



Coleoptera of the Family Paussidae.

By S. RIBEIRO, *Assistant, Zoological Survey of India.*

(Read at the Twelfth Annual Meeting of the Indian Science Congress.
Published with the permission of the Director, Zoological
Survey of India.)

(Communicated by DR. S. L. HORA.)

The present paper is the outcome of a systematic study of the family Paussidae, with special reference to the Indian species. With a view to interest Indian Entomologists in this little known family I propose to briefly describe here its position among the Coleoptera, and include notes on its geographical distribution and the myrmecophilous habits of certain members of the family.

Burmeister (1)¹ basing his conclusions chiefly on the wing-venation, which is distinctly adephagid, grouped these beetles with the Adephaga. He further regarded the Paussidae as being allied to the Carabidae and placed both families in his suborder Geolestes, which he erected for the purpose. In this classical paper he also gives a review of the literature previous to his own studies.

Lacordaire (2), however, considered the Paussidae as intermediate between the Palpicornia, in which the maxillary palpi are very long, being longer than the antennae, and the Staphylinoidae, in which the maxillary palpi are not developed and the antennae are variable. This view finds some support in the fact that in the Paussidae the maxillary palpi are not so well-developed as in the Palpicornia, while the extremely variable antennae bring them near the Staphylinoidae.

Sharp in his Classification of the Coleoptera (3) placed the family in his series Polymorpha. The wing-venation of the family has, however, caused it to be now almost universally recognized as belonging to the Adephaga. The wing preparations of the various genera and species of the Paussidae in the collection of the Zoological Survey of India, which I have made, have also confirmed their adephagid character; the areola oblonga or enclosed cell being always present.

Lameere (4) placed the Paussidae in the division Adephaga, subdivision Carabiformia, in which he also included the families Rhysodidae, Carabidae, Dytiscidae and Gyrinidae.

¹ The numerals after the authors' names correspond with those given in the bibliography, and merely denote the works referred to.

In a later work (5) he, however, divided the Coleoptera into two main divisions, the Adephaga and Polyphaga, which he again subdivided into (i) the Cupediformia and Carabiformia and (ii) the Cantharidiformia and Staphyliniformia. The position assigned by Lameere to the Paussidae, therefore, is more or less the same as that of Burmeister's.

Kolbe (6) considered the Coleoptera to consist of the sub-orders Adephaga and Heterophaga. These two sub-orders he distinguished by the venation of their wings, and placed the Paussidae and the families of Sharp's Adephaga, together with the Gyrinidae and Rhysodidae, in the division True Adephaga of the suborder Adephaga. In view of the importance of the characters of the venation of the wings in the classification of the Adephagous Coleoptera I adopt in this paper Kolbe's classification. It may, however, be noted that this classification has not been followed by Ganglbauer (7), who divides the Coleoptera into the suborders Adephaga and Polyphaga and places the Paussidae in the Adephaga; Desneaux (8) has supported these views.

Raffray in his valuable monograph showed that the mouthparts of the species belonging to this family are very different from those of Scolytidae, Bostrychidae and Cucujidae, to which they were considered to be allied by Latreille and Westwood. He considered the Paussidae to be an abnormal family and, owing to some resemblances in the mouthparts, closely allied to but distinct from the Carabidae. According to him and Desneaux the Paussidae are apparently descended from the Carabidae, which belong to an ancient group of ground beetles, the Ozaenidae. Raffray further pointed out that the Ozaenidae may be associated with the Carabidae on account of certain characters present in the genera *Physeia* and *Sphaerostylus*. He also compares the Cicindelidae, through the genus *Pogonostoma*, to the Paussidae.

In "Genera Insectorum" Desneaux (8) adopted Raffray's arrangement in its entirety, while Wasmann (9), in a biological and phylogenetic study of the Paussidae, regards them as truly adephagous; this view has been fully confirmed by Boving's work (10) on the larvae and pupae of *Paussus kannegieteri* Wasm. Kolbe (11), in the introduction to his latest work on certain Australian species of the family, regards the Paussidae as a lateral branch of the Carabidae.

The evolution of the number of antennal joints in the Paussidae is interesting and provides further evidence for their Carabid affinities. Taking the genus *Protopaussus*, which is believed to link these beetles to the Carabidae, we find that its antennae are composed of eleven free and simple joints. In the other genera of the family they gradually fuse together until we have (i) the joint which connects this soldered appendage to the head and (ii) its characteristic club. In the genus

Pleuropterus the antennae are ten-jointed, nine soldered and one free, while in the genera *Ceratoderus* and *Merismoderus* they are six-jointed, the last five being apparently soldered together. Lastly, in the genus *Euplatyrhopalus* the antennae are two-jointed, the basal joint serving merely as a connection between the head and the club, the latter being formed of five fused segments as seen by the irregular constrictions present on its external margins.

The genus *Paussus* was founded by Linnaeus (12), while *Cerapterus* was established by Swederus (13); neither of the two authors, however, assigned them to their family. Latreille (14) was the first to accord them family rank under the name Paussili. This name, nevertheless, was later changed by Leach (15) to Paussides, while Westwood (16) proposed the new family name Paussidae for them.

In Donovan's "Natural History of the Insects of India" (17) Westwood described four species of Paussidae from India and later summed up his knowledge of the family in "Arcana Entomologica" (18) and "Thesaurus Entomologicus Oxoniensis" (19). Boyes (20) and Benson (21) added interesting accounts of these insects in their papers. Raffray (22*a, b*), in addition to his systematic descriptions, summarises all previous work on the family and considers in detail the morphological features of the various species. Atkinson, by the publication of his "Catalogue of the Insects of the Oriental Region" (23) has added considerably to our knowledge of the geographical distribution of the Paussidae. Of recent workers, mention must first be made of Dr. R. Gestro, who published a "Systematic Catalogue of the Paussidae" (24) and described several new species. The first complete revision of the whole family, however, was published by Desneaux in "Genera Insectorum" (8) which is at present the standard work on the subject. The only connected account of the Indian Paussidae has been given by Fowler in the "Fauna of British India" series (25). Since 1890 Wasmann has regularly contributed papers on this family, and has discussed the bionomics from different points of view. His papers on myrmecophily and bionomics are of special interest. Wheeler (26) in his book on the "Ants" has furnished us with a summary of the myrmecophilous habits and, in fact, the general bionomics of these beetles.

In dealing with the distribution of the Paussidae, it will only be possible here to indicate briefly the more important and interesting features of the subject.

The geographical range of the Paussidae is fairly wide, probably because the individuals of many species are capable of powerful flight, or, in certain circumstances, are carried over long distances by winds. The family is almost exclusively confined to the Eastern Hemisphere and principally inhabits Africa, Asia and Australia. Many genera are widely distri-

buted, while others are endemic. This apparent phenomenon, however, is primarily due to the rarity of the insects, and also to the fact that they have not been more carefully collected in the localities where they occur: but natural barriers such as high mountain ranges, deserts and the oceans may also be responsible for the isolated distribution of the genera. Knowing, therefore, the spread of the Paussidae in these continents it would be interesting to ascertain (i) the similarity of the faunas of these regions and (ii) the probable centre of origin of the family.

The species of the family number about 370. Gestro recognizes 16 genera. From India 9 of these genera have been recorded, and 82 species have so far been described from this area.

The accompanying table shows all the genera and species of the family so far found in India. The zoo-geographical regions adopted are those that have proved most convenient in illustrating their range. In this table I have not considered the various varieties that have been described, as they appear to have no geographical significance. The Paussids, in India, are best represented in the Indo-Gangetic Plain, Peninsular India and the Assam-Burmese Region. The most characteristic genus of the family as regards its geographical distribution is *Paussus*. It is widespread in its distribution and has been found in almost all the Indian areas, as also in other regions where Paussids are known to occur.

Very little is known of the Paussidae of the countries that surround India and only a few species have been recorded from North China, Cochin China and the Malayan Archipelago, while two species have been described from Arabia.

Kolbe and Mac Leay have principally dealt with the range of these beetles in Australia, while Westwood and Wasmann have discussed their distribution in Africa.

On account of the myrmecophilous habits of certain species of the Paussidae, the relationships that exist between them and the ants have been subjected to much discussion in recent years. It is very difficult to decide as to whether these beetles are commensals, true guests, ant-cattle or pets. The bionomics of the family must, therefore, be considered first. This may be done under two main heads, viz.: (i) the development of the myrmecophilous habits of these species and (ii) their relation to the ants. As regards the first it is stated that these myrmecophiles inhabit the nests of terrestrial ants, principally of the subfamilies Myrmecinae and Camponotinae, chiefly on account of a ready food supply and abode. The questions to be considered are how they came to select these abodes and whether all the individuals, that frequent the ants' nests, are females. A partial explanation of the problem is possible if the latter is the

| Geographical Areas. | Proto-paussus. | | Cera-p-terus. | | Pleuro-p-terus. | | Cera-to-derus. | | Meris-moderus. | | Euplaty-rhopalus. | | Platy-rhopalus. | | Platy-rhopa-lopis. | | Paussus. | | Total number of species. | | |
|----------------------------|-----------------------------|---|---------------|---|-----------------|---|----------------|---|----------------|---|-------------------|---|-----------------|---|--------------------|----|----------|----|--------------------------|---|--|
| | | | | | | | | | | | | | | | | | | | | | |
| Distribution in India. | Assam-Burmese Region . . | 2 | 1 | — | — | — | — | — | — | — | — | — | — | 2 | 1 | 7 | 4 | 17 | 8 | | |
| | Indo-Gangetic Plain | — | — | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | — | — | 15 | 8 | 24 | 12 | | |
| | Eastern Himalayas | — | — | — | — | — | — | — | — | — | — | 1 | 1 | — | — | — | — | 2 | — | | |
| | Western Himalayas | — | — | — | — | — | — | — | — | — | — | 2 | 2 | — | — | — | 1 | 7 | 1 | | |
| | Peninsular India | — | — | 1 | — | 1 | — | 3 | 2 | — | — | 1 | — | — | — | — | 13 | 6 | 23 | 8 | |
| | Ceylon | — | — | 1 | — | 1 | — | — | — | — | — | — | — | — | — | — | 6 | 5 | 8 | 5 | |
| Andamans | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1 | 1 | 1 | 1 | | |
| Extra-Indian Distribution. | Indo-Malayan | — | — | — | — | x | — | — | — | x | x | x | x | x | — | — | x | x | x | x | |
| | Australasian | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | x | x | x | x | |
| | Ethiopian | — | — | x | x | x | x | — | — | — | — | — | — | — | — | — | x | x | x | x | |
| | Palearctic | x | x | — | — | — | — | — | — | — | — | — | — | — | — | — | x | x | x | x | |

The first column under the generic names includes the total number of species in a particular region; the figures in the second column indicate the endemic species.

A cross (x) denotes the presence of one or more species of a genus, which are found in the area specified.

case. It is possible that after copulation¹ the females of the species fly about in quest of a suitable locality where they may safely deposit their eggs and rear their larvae. Finding nothing more suitable than the ants' nests, they seek the hospitality of these shelters. It may further be noted that if the sex of the specimens taken at light were known it might help to elucidate this mystery.

Boving (10) in his summary of the description of the larvae, etc., of *Paussus kannegieteri* Wasm. states that the larvae, pupae and adults of this species were taken by Dr. Jensen in an ant's nest in Pangerango, Java. From this observation it would appear that the beetles are tolerated by the ants and are not a source of annoyance to them as they do not pilfer the ant-colony and are apparently not parasitic on them. Wheeler (26) thinks it possible for all myrmecophilous coleoptera to avoid the constant surveillance of the ants in carrying out their plunderous attacks on the ant-colony. This necessitates agility in action, which appears to be wanting in the Paussidae in general. Since the Paussidae, however, are not regarded as persecuted guests it is obvious that they are either true-guests, pets or ant-cattle.

It is interesting to remark here that certain species of the Paussidae are the oldest known ant-guests, and have been recorded as occurring in Baltic Amber of the Oligocene period [cf. Wasmann (27)].

Wasmann treats these beetles as constituting the "Symphiles" or "True Guests." He bases his opinion on the fact that members of this group are well-treated, unmolested, fondled and cared for by their Formicid hosts, and even reared by them. The myrmecophilous Paussidae are differentiated from all other forms of myrmecophiles by their large size and general facies, which, as Wheeler remarks, show a remarkable instance of adaptive convergence, for they have come to develop peculiar traits, particularly in the structure of their trichodal glands and mouthparts. These species of Paussids further display tufts of red or golden-yellow hairs, which are considered the principal feature of "Symphiles" or "True Guests," and are present in these beetles only.

¹ Concerning this I must mention that Mr. T. Bainbrigge Fletcher, Imperial Entomologist, Pusa, has taken a male and female specimen "in cop." among others in Assam. It therefore follows that, with regard to that particular species, sexual intercourse occurs in the open. It, however, remains to be proved whether the nest-frequenting individuals are impregnated females. Fowler in his habitat of *Paussus suavis* Wasm. [(25) p. 492] mentions that Wroughton took a single female specimen of this species in a nest of *Pheidole latinoda*, so we have here an instance where the female of a particular species is recorded as being got from an ant's nest. Therefore, it seems possible that individuals of the myrmecophilous Paussidae taken in ants' nests are all females.

As tolerated guests the myrmecophilous Paussidae are allowed certain privileges. They have been found to occupy a conspicuous position in ants' nests and it is not improbable that their presence in the nests is advantageous to the ants. These beetles, in order to safeguard their own interest, have, in all probability, developed the means of ejecting a certain volatile substance which Wheeler says, "the ants are so inordinately fond of it that he (Wasmann) believes that it must affect them very much as a good cigar affects a smoker." In consequence, the ants may possibly take a keen interest in their guests. It is also recorded that the ants do not treat the individuals of the myrmecophilous species of the Paussidae as mere pets or fellow-lodgers as these coleoptera are not without notice in their nests. There is apparently no evidence to prove that the beetles are ant-cattle, for, unlike the plant lice (Aphididae), they are not induced by the characteristic strokes of the attendant ants to exude their juices.

In view, however, of the peculiar organs of secretion which distinguish the myrmecophilous species of the Paussidae from the remaining forms of myrmecophiles, I can do no better than agree with Wasmann and Wheeler, both of whom consider these beetles to be "Symphiles" or "True Guests" in the nests, generally, of certain terrestrial ants.

In conclusion I take this opportunity to express my sincere thanks to Drs. B. Prashad and B. N. Chopra for the facilities they have accorded me during my studies.

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ERRATUM.

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P. 394, l. 38, *read* preserved *for* remembered.

The Musnad of 'Umar b. 'Abdī'l-'Azīz.

[I]

By A. H. HARLEY.¹

ABBREVIATIONS.

- A.b.H.—Ahmad b. Hanbal, *Musnad*.
 Agh.—*Kitābu'l-Aghānī*.
 I. Ath.—Ibnu'l-Athīr (*al-Kāmil*).
 I. Kh.—Ibn Khallikān (*Wafayātu'l-A'yān*).
 Mishk.—*Mishkātu'l-Maṣābīh*.
 Naw.—an-Nawawī (*Tahdhībū'l-Asmā*).
 Suy.—as-Suyūṭī (*Ta'rikhu'l-Khulafā*).
 Tab.—at-Ṭabarī (*Ta'rikhu'r-Rusul wa'l-Mulūk*).
 Tab. Huf.—*Tabaqātu'l-Huffāz* (adh-Dhahabī).
 Tah.—*Tahdhībū't-Tahdhīb* (Ibn Hajar).

INTRODUCTION.

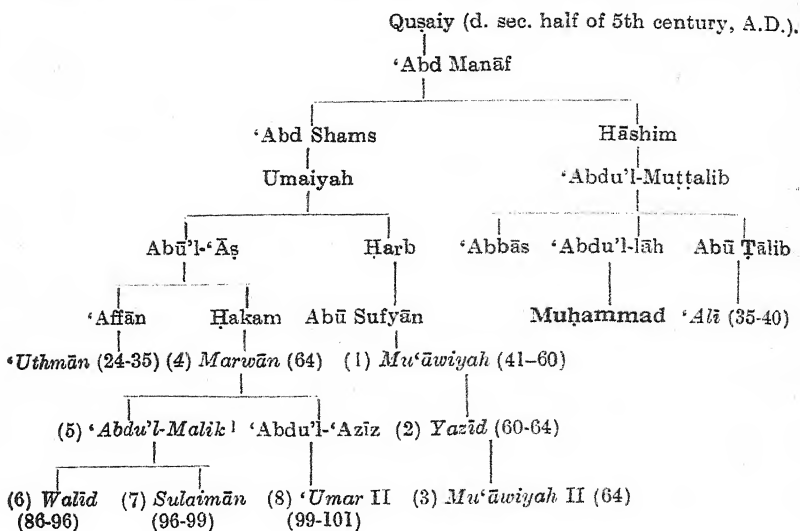
I. *Biographical sketch of 'Umar b. 'Abdī'l-'Azīz ('Umar II).*

The Khilāfat, contested by Mu'āwiyah b. Abī Sufyān with 'Alī, fourth of the Orthodox Khalīfahs (al-Khulafā'u-r-Rāshidūn), was eventually secured by the former, the erstwhile Governor of Syria, and passed with him to the Banū Umayyah. By dint of astuteness as well as ability he confirmed his supremacy, and the headship of Islām remained vested in this House from 41–132 A.H. (661–750 A.D.). In the person of 'Uthmān, the third ruler to succeed the prophet, it had contributed one member to the four "Orthodox Khalīfahs."

The following genealogical table traces back 'Umar II's line of descent to the early days when the tribe of Quraish sprang into prominence, i.e., to the time of Qusaiy, who obtained for them by wiles and force of arms the hegemony at Makkah and guardianship of the Ka'bah; it shows also his relation to the Prophet. The Khalīfahs are distinguished with italics, and the dates of their Khilāfat added in brackets; the Umayyad Khalīfahs are enumerated in order of succession:—

¹ I must express deep indebtedness to Mvi. Md. Yahyā, Asst. Head Mawlavi, Calcutta Madrasah, for the important reference to Ibn Hajar (*inf.*, XX, l. 25), and for generous help in tracing the *rijāl* and *aḥādīth*.

[II]



The Umayyad dynasty has with unanimity been summarily characterised as one of good livers, but bad Muslims. That ease should have gnawed at the vitals of its activities can be well understood, for the young state had been enormously enriched by the spoils of far-flung warfare; it was organised for war, and but little for the arts of peace; its executive was more or less empiric, and its institutions still nascent. Under 'Uthmān's feeble government disorganisation and disunion had raised its head,—an almost inevitable event in an empire of ill-assorted elements; in 'Alī's time disintegration increased, and it was not to be wondered at that an ambitious and capable governor like Mu'āwiyah should have carved out for himself a realm. But his methods were unscrupulous and bound to make the orthodox more disaffected, for he who himself had not been popularly elected did not observe the institution of popular election in the matter of his successor; he and his house became regarded as worldly potentates, seeking the things of this world as well as, but usually in preference to, those of the spiritual. Though piety gained no new accession through them save in the single instance of 'Umar II, their period was not in all other respects a desolate interval or an apologetic interlude; in the field, e.g., the conquest of Spain (92 A.H.) stands to their credit; to poetry and music they extended their patronage, and the foundations were laid of the great historical and theological monuments

¹ Recognised in Syria and Egypt from 65, and universally from 73-86 A.H.

which attained completion under the subsequent dynasty at [III] Baghdad. Spiritual life languished at their court, but tradition and history have exempted 'Umar II from condemnation for any laxness or indifference. He is held universally in sacred memory, and pious fancy has fondly woven much into the web of his biography. Muslim India would probably exalt only one other royal prince to a place with him, viz., Dārā Shikōh, the Mughal philosopher-saint (1024-1069 A.H., i.e., 1615-1659 A.D.).

The place and date of birth of 'Umar II, properly Abū Hafs 'Umar b. 'Abdī'l-'Azīz b. Marwān, have been much disputed. Misr,¹ and Hulwān,² a village in Lower Egypt, situated to the south of Cairo, have been mentioned with Madinah as his birth-place, but the last is probably correct,³ for according to Tabarī (II, 398) and Ibnu'l-Athir (IV, 85), Marwān and two of his sons, one of them 'Abdu'l-'Azīz, were in Madinah in 61 A.H., in which year 'Umar is generally said to have first seen the light; 62 (Tab., II, 1182) and 63 (Suy., *l.c.*; cf. Mas'ūdī, *Mur. adh-Dhahab*, at the beginning of the section on the Khilāfat of 'Umar II), have also been given as the date of the latter event, but 'Abdu'l-'Azīz, his father, did not become governor of Egypt until 65 A.H.⁴ The appointment then made was confirmed by the following Khalifah, his brother 'Abdu'l-Malik, and he retained the office till his death in 85 (Tab., II, 1165) or 86 (al-Kindī, *l.c.*, 55), which left 'Abdu'l-Malik, whom according to Marwān's last covenant he should have succeeded in the Khilāfat, free to arrange for the retention of the supreme office in his own family.

On his mother's side too 'Umar II was of distinguished line, for she, Umm 'Āsim by name, was grand-daughter of 'Umar b. al-Khattāb, of immortal fame as "Companion" and as Khalifah, whose godly activities and practical saintliness not to know is to find the record of a theocratic state a book with seven seals.

He was called "Scar-face of the Banū Umayyah" owing to a scar caused by a kick from a horse, belonging, it is said, to his father, in Damascus, during his boyhood (Tab. II, 1362). The affectionate memory of posterity presumably has elaborated the circumstances into the narrative that when he was carried to his mother she tenderly wiped away the blood, and turned on his father, who had come up meantime, with reproaches for imperilling his life by giving him no attendant; but he hailing the wound as an auspicious omen replied:

¹ Abu'l-Fidā', I, 201, ed. Eg., 1325; an-Nawawī, *Tah. Asmā'*, 465.

² Suyūṭī, *Tar. Khulafā'*, sect. on Umar II's Khilāfat.

³ Huart, *Hist. d. Arabes*, I, 269; adh-Dhahabī, *Tadh. Huffāz*, I, 112 (Hyderabad, 1333 A.H.); cf. *Dā'iratu'l-Ma'ārif*, II, 111.

⁴ al-Kindī, *al-Wulāt w'al-Quḍāt*, 48-9 (Gibb Mem. Ser.).

- [IV] "Umm 'Āsim, blessed art thou since he is 'Scar-face of the Banū Umayyah'," for tradition had ascribed to 'Umar b. al-Khaṭṭāb the prophecy: "One of my descendants with a scar on his face will fill the earth with justice."¹

His early life is not known to us in much detail. He was sent in his youth to Madīnah for his education, and placed under the tutelage of Ṣālih b. Kaysān.² There he was frequent in attendance for purpose of study on 'Ubaidu'l-lāh b. 'Abdi'l-lāh b. 'Utbah, one of the seven great masters of Islamic law,³ and of whom he is reported to have said that "a séance with 'Ubaidu'l-lāh is dearer to me than the world and all it holds."⁴ He was prominent among the early *Tābi'ūn*; a tradition on his authority is given in the Musnad (*infra*, r¹, 6).

On the death of his father he was summoned to Damascus by 'Abdu'l-Malik, the then Khalifah, who befriended him, and married him to his daughter Fātimah, whose hereditary and marital rank have been preserved in the tag :

Caliph for sire, and grandsire too ;

Caliph her spouse, and brothers too.⁵

Al-Walīd, who succeeded his father, 'Abdu'l-Malik, in 86 (705 A.D.), sent 'Umar to Madīnah in the capacity of governor in 87.⁶ Here according to the statement of Anas b. Mālik, he was marked by the earnestness of his devotions.⁷ His term extended to 93 A.H., when he was removed at the instance of al-Ḥajjāj b. Yūsuf, Governor of 'Irāq, who, in retaliation on 'Umar for having reported to al-Walīd his tyranny, wrote to the Khalifah complaining that the malcontent refugees from 'Irāq were being harboured at Madīnah.⁸ He appears to have remained for several years thereafter at the Syrian court, without official appointment, but interesting himself in the concerns of the State during the incumbency of Sulaimān.

In 99 (717 A.D.) he was acknowledged Khalifah at Dābiq, a village in northern Syria. Sulaimān according to the now well-established Umayyad custom whereby the Khalifah decided the succession, would have settled it on one of his own children, a minor.⁹ But one in his entourage, Rafā' b. Ḥaywah, remonstrated with him urging that 'the Khalifah would be remembered in his grave by his appointment of an upright man as his successor over the Muslims,'¹⁰ and he gave way so far as to promise to seek counsel of God. On the morrow or the following day Sulaimān renewed consideration of the matter ;

¹ Tab., II, 1362-3; Suy., l.c.

² Tah., VII, 790, IV, 682.

³ I. Kh., de Slane, I, 264.

⁴ I. Kh., de Slane, II, 75; see also *Agh.*, VIII, 93, I. Ath., IV, 418.

⁵ Suy., l.c.

⁶ Tab., II, 1182; I. Ath., IV, 417.

⁷ A. b. H., II, 330, 4; III, 144, 6; 162, 31; 221, 3.

⁸ Tab., II, 1254.

⁹ Tab., II, 1341.

¹⁰ I. Ath. V, 27.

Rajā' having secured the elimination of Dā'ūd, son of Sulaimān, on the ground that he was far from the scene and exposed to the hazard of warfare against Constantinople, led him to suggest as were it on his own initiative the name of 'Umar b. 'Abdī'l-'Azīz, and to his enquiries regarding the latter, replied with such encomia on his merits that the Khalifah wrote out a deed assigning to him when his own hour should come the first power in the land. Fear of the displeasure of his nearer kin and of their consequent intriguing against 'Umar prompted him to what he regarded as a precautionary measure, viz., to determine the succession after him in favour of Yazīd b. 'Abdī'l-Malik.¹ Then he sealed it and summoned his household, and asked them to swear to do homage to the unknown nominee, which they did man by man. Rajā' is also authority for the statement that before Sulaimān's death, while yet the name had not been disclosed, 'Umar came to him adjuring him by 'God, my honour, and my affection' to state whether he had been nominated, so that while there was still time he might request the withdrawal of his name, but Rajā' turned a deaf ear to his earnest solicitation, and 'Umar left in anger. When Sulaimān died, Rajā', a veritable "King-maker," concealing from the kin the news of his demise, convoked them in the mosque of Dābiq, and again called upon them to swear allegiance. This accomplished, he revealed the fact of the Khalifah's decease. The account attributed to the "King-maker" himself when he had read aloud the document of the succession depicts a curious scene, representing the rejection of an ambitious claimant, and the preferment of a person against his will and conscience, and paling before responsibility; for having announced the sealed name, and compelled the disappointed Hishām b. 'Abdī'l-Malik to take the oath of fealty, Rajā' goes on to say: "I seized 'Umar by his arms and seated him on the pulpit, he repeating the while 'We are God's and must return to Him,'² by reason of his despair at what had fallen to his lot, and Hishām repeating the like by reason of his despair at what he had missed."³ Mas'ūdī's account gives to Rajā' a much less important role, and merely states that Hishām walked out on 'Umar's name being divulged, but took the oath of allegiance two days later.⁴ Though 'Abdu'l-'Azīz b. al-Walid, another claimant, who had been absent during the closing period of Sulaimān's life, is reported to have declared that he would rather see 'Umar vested with the supreme authority than any other, yet it was probably Rajā's strong action which saved the State from being torn by these aspirants.

¹ Tab., II, 1341; I. Ath., V, 28; cf. the account of the appointment of 'Umar in Mas'ūdī, *l.c.*

² Qur'ān, II, 151.

³ Tab. II, 1344.

⁴ Mur. Dhahab, *l.c.*

[VI] The task to which he was called was not one that could be lightly assumed by a man of scholarly and devotional habit, and indifferent to political ambition. There was war with Byzantium, religious faction within the empire, discord between the elements constituting it, agrarian discontent resulting from al-Ḥajjāj's measures to keep the cultivators on the land, and domestic antagonism directed against him by disappointed kinsmen.

Tradition is disposed to indicate a marked difference in his conduct before and after his assumption of the khilāfat. For instance, Jarīr, a member of the brilliant but notorious triad of Umayyad poets, failed to gain admission to a Khalifah, who as he complained to his fellow-poet Dukain the *Rājiz*, "gives to the poor, but refuses poets."¹ Again, Kuthaiyir, al-Aḥwaṣ and Nuṣaib, relying on their former poetical friendship with him, sought his court; they hung around for several months, and when at last they succeeded in obtaining audience of him, and Kuthaiyir would have resumed genial relations, they were permitted to declaim their verses only on condition they would recite the truth, "for God will hold you responsible."² In the *Aghānī*, Sāliḥ is credited with saying that "we used to pay the washerman well to wash our clothes after 'Umar's had been washed, because of the great amount of perfume, viz. musk, which they contained; but when I saw his clothes after he had become Khalifah, they were quite different from what I used to know."³ Suyūṭi however has probably summarised correctly the facts when he says: "Even before his khilāfat he walked in virtue's way, except that he was given over much to luxury; but his envious detractors could find nothing worse in him than indulgence in luxury and hauteur in gait."⁴ The conclusion seems justified that in the three chief stages of his life, viz. the period of youth, of responsibility of office at Madinah, and afterwards at Damascus, he passed from earnestness unto increasing earnestness; that as his nature unfolded, an inherent disposition towards pietism, fostered by his youthful studies in the law of Islām at the feet of the masters in one of the holy cities, developed, to the complete inhibition later of concern with time's fleeting pleasures. The mantle of high and holy office fell on the shoulders of one who was "a sair sanct for the croon." 'Umar b. Dharr relates that his freedman noting his sadness on his return from the burial of Sulaimān spoke of it, and 'Umar replied: "Placed in such circumstances as I am one must grieve. There is none of the people but I wish to give him his due without his writing to me about it, or petitioning

¹ *Agh.*, VIII, 155.

³ *Agh.*, VIII, 155.

² *Agh.*, VIII, 153-4.

⁴ *Suy.*, l.c.

me for it."¹ Though he 'had not sought this authority of the [VII] Lord,' he with confession of unworthiness dutifully applied himself to the task.

Retrenchment, official and personal, figure among the earliest features of his administration. When the animals in the imperial stable were led before him he rejected all in favour of his own riding-beast,² and ordered the others to be sold and their price to be paid into the Treasury. The expenses of the household he reduced to the minimum of drain on the State resources, and its fare to the barest. Mālik b. Dīnār³ would not have it that people should regard him as an ascetic comparable with 'Umar b. 'Abdīl-'Azīz, "who obtained the world, but renounced it." The rigour of his renunciation extended even so far as to his giving his wife the option between making over her jewels to the public treasury and separation.⁴

In the beginning of his reign too he recalled Maslamah b. 'Abdīl-Malik and his Muslim forces from the long conflict with-Byzantium, and saw to it that the privations they had endured were amply made up to them by stores of food, and their withdrawal facilitated by a reinforcement of picked cavalry.⁵ Again, in 101 A.H., he forbade his governor in Transoxiana to make new incursions with his Muslim troops,⁶ but though he thus set his face against war for territorial aggrandisement and acquisition of spoils, he was not dilatory in taking effective measures against a foreign aggressor, for when the Turks raided Ādharbayjān and slew some adherents of Islām, he despatched a force which almost annihilated them.⁷ In Spain however, during his reign, the Muslim armies continued their victorious advance, and crossed the Pyrenees into France.⁸

The action he took against the schismatic Ḥārūrīs of 'Irāq, whose theocratic zeal is said to have led them to revolt in 100 A.H., was similarly resolute. When his governor had failed in his attempt, prompted by 'Umar, to persuade them to action in accordance with the Qur'ān and the practice of the Prophet, and his army was subsequently defeated by them, 'Umar despatched his Syrian troops in charge of Maslamah, and soon proved victorious over the heretics.⁹ Even in the event of the alternative account being the accurate one of this rising in 'Irāq, viz. that it was due to a small party of sectarian malcontents headed by Bistām, known as Shaudhab, his procedure was at any rate definite and direct, if exceedingly

¹ Suy., *ib.*² Tab. II, 1344.³ Suy., *l.c.*⁴ Suy., *ib.*⁵ Tab., II, 1346.⁶ Tab., II, 1365.⁷ Tab., II, 1346.⁸ Huart, *Hist. d. Ar.*, I, 270; and see Muir's *The Caliphate*, 371 (ed. 1915).⁹ Tab., II, 1347-8.

[VIII] tolerant. He instructed his governor to have a force on the spot, but to have recourse to arms only in the event of their shedding blood or pursuing a nefarious course in the land, and communicated to Shaudhab his willingness to discuss with him the grounds of his schism. A conference with representatives of the latter is said to have taken place, in which they expressed themselves as aggrieved at the selection of Yazid to succeed him, a selection with which, as he explained, he had no concern.¹ Mas'ūdī gives at some length what purports to be 'Umar's argument on this occasion; as he proceeded from point to point eliciting a categorical "Yes" or "No" in answer to each he showed himself a skilled dialectician, and the whole made a convincing argument based on their own conduct against the unreasonableness of their demand that he should curse the house of Umayyah, and dissociate himself from them; it was impassioned too,—“Think ye,” he exclaimed, “our faith to be one or two-fold?” This much he appears to have achieved that the puritanical Khawārij lay low for the remainder of his tenure of office.²

It is no little tribute to his tact in thus encountering and disarming criticism, as well as to his character, that the various religious sects refrained from warring with him. But though he himself was approved of many and apparently tolerated of all, his period marks the beginning of the despatch of emissaries to 'Irāq to agitate against his dynasty; the cloud began to form which three-quarters of a century later was to burst in an angry storm that swept away this house and its Arab civilisation, and left behind another which in time became overgrown with Persian culture.

Careful to select upright men as his executive and judicial officers, he did not hesitate to remove such as did not attain to his standard of probity or equity. An early administrative action of this nature was the deposition of Yazid, son of the al-Muhallab whom al-Hajjāj b. Yūsuf, his son-in-law, had appointed governor of Khurāsān in 79 A.H. Al-Hajjāj however had seen fit to imprison Yazid in 86 A.H.,³ possibly from envy mixed with fear of his popularity,⁴ or because, as he alleged before al-Walid b. 'Abdīl-Malik, “the family of al-Muhallab have defrauded the Treasury.”⁵ Yazid escaped and found favour with Sulaimān, who when he became Khalifah further patronised him by making him Governor of 'Irāq, and later of Khurāsān. The family was reputed for its bravery and for its generosity,—“persons versed in history all agree that, under the Omayyides, the most beneficent family was that of the Muhallabs, and, under the Abbasides, that of the

¹ Tab., II, 1349.² Mas., *l.c.*³ I. Ath., IV, 417.⁴ I. Kh., de Slane, IV, 164.⁵ *ib.*, 180.

Barmekides."¹ Yazīd was endowed with his family's qualities [IX] of bravery and liberality, but evidently esteemed highly popularity and was unwilling to risk it.² 'Umar it appears had already before his succession objected to his abuse of public money, and seized the earliest opportunity after his own appointment to power of removing him from his governorship on the ground that he and his family were tyrannical, and placed him in confinement for failing to remit money which should have come to the Treasury after the conquest of Jurjān.³ He remained imprisoned until 'Umar's fatal illness, or till after his death, when he escaped only to create serious trouble in the following reign in 'Irāq.

Again, al-Kharrāj, who on taking up his gubernatorial duties in the disturbed province of Khurāsān had consulted 'Umar on the advisability of adopting stringent measures of suppression, and had been admonished to punish only where punishment was due,⁴ was recalled for his haughty and exclusive attitude towards the "Mawālī," though as many as twenty thousand of these, it was represented, were taking part in military expeditions without remuneration, while from a large number of "Dhimīs" or protected non-Muslim subjects, who had recently professed Islām, he was exacting *Kharāj*, therein pursuing a policy similar to that in the agricultural measure of al-Ḥajjāj, the former governor of 'Irāq, whose name by reason of his tyranny was and is anathema. The fact that al-Kharrāj when summoned to appear before 'Umar set out in Ramaḍān was confirmatory to the latter of his churlish inconsiderateness.⁵

'Umar's land-policy, adopted in the year 100 A.H., of freeing all Muslims from taxes, and requiring only the tithe in kind from them, was a reversion to primitive Islamic custom, but the fact that it was not introduced earlier in his reign, and then only on representation made to him, seems to indicate that though long acquainted with the problem he had not come into office with any definite ideas as to the incidence of taxation, and conceded it as a religious measure.⁶

Al-Fakhri's estimate may be taken as an epitome of the general opinion: "'Umar b. 'Abdī'l-'Azīz was one of the best of the khalifahs, erudite, ascetic, reverent, God-fearing, and pious; his manner of life met with approbation, and he passed away honoured."⁷ His religious zeal was moderated by a philosophic, moralising faculty, which expressed itself in aphorism and sententious utterance; e.g., "The best modera-

¹ *ib.*, IV, 170.

² *ib.*, IV, 185; *Tab.*, II, 1306.

³ *Tab.*, II, 1350, I. Kh., de Slane, 172.

⁴ *Tab.*, II, 1355.

⁵ *Tab.*, II, 1354-5.

⁶ Muir, *Caliphate*, 373; Huart, *Hist. d. Arabes*, I, 270.

Al-Fakhri, ed. Ahlwardt, p. 154.

[X] tion is in affluence, and the best of pardons in power" ¹; "Who makes his faith a butt of contention, oft changes about" ²;
 حدثنا محمد بن عبد الله الاسدي قال حدثنا [سفيان] ³ عن عمر بن عبد
 العزيز قال من لم يعد كلامه من عمله كثرت خطايه و من عمل بغير علم كان ما
 يفسد اكثر مما يصلح * ⁴

A practice which he is said to have terminated was the cursing of 'Ali by the Umayyads from the pulpits in the mosques. Mu'awiyah had initiated it in 41 A.H., and it continued till its prohibition by 'Umar in 99. ⁵ His father had entertained similar views as to its objectionable nature, but had allowed it to remain in Egypt on the ground that its cessation would be favourable to the cause, then but scotched, of the 'Alides. ⁶ 'Umar substituted for the malediction the Qur'anic verse XVI, 92, ⁷ or the petition in Sūrah LIX, 10, or both verses. ⁸ His tolerance earned for him due meed of praise. Kuthaiyir 'Azzah, for instance, on the occasion of his audience of 'Umar already referred to, ⁹ opened his poem with the lines:

Thou cam'st to power, but 'Ali hast not reviled,
 Nor feared ill tongue, or walked in sinner's way. ¹⁰

And yet more appreciative of his action are the memorial lines of the Sharif ar-Riḡā al-Mūsawī: ¹¹

Son of 'Abdu'l-'Azīz, an for Umayyad
 Mine eye could weep, 'twould for thee!
 Who saved our name from jibe and jeer;
 Could I requite, I would surely thee.
 But this to add,—thy unrighteous house
 Lacked sweet grace that clung to thee.
 Cloistered Sim'ān, ¹² whose dead is best of Marwān's ilk,
 Morning showers ne'er fail to visit thee! ¹³

¹ Suy., l.c.; cf. 'Iqdul-Farīd, II, 245, ll. 2-3, ed. Eg., ۱۳۱۶, and the following from a MS. of the *Musannaf* of Abū Bakr b. Abī Shaybah:

حدثنا حسين بن علي عن المهبلي عن عقبة قال كان عمر بن عبد العزيز
 يخطب يقول ان من احب الامور الى الله القصد في الجدة و العفو في
 المقدرة والرفق في الولاية و ما يرفق عبد بعبد في الدنيا الارق الله به يوم
 القيمة *

² Al-Jāhiz, *Al-Bayān* etc., II, 37, ed. Cairo.

³ Added in margin.

⁴ MS. of *Musannaf* of Ibn Abī Shaybah; cf. Tab., II, 1364, 4-5.

⁵ Abū'l-Fidā', I, 201.

⁶ Al-Fakhri, 154.

⁷ Abū'l-Fidā', I, 201.

⁸ Mas., o.c.

⁹ Sup., VI.

¹⁰ *Agh.*, VIII, 153; cf. Abū'l-Fidā', I, 201; al-Fakhri, 154 (ed. Ahl.).

¹¹ I. Kh., de Slane, III, 118.

¹² *inf.*, XII.

¹³ al-Fakhri, 155.

'Umar appears to have had considerable general culture. [XI] His father, 'Abdu'l-'Azīz, is said to have been a judge of good poetry, and like so many others in an age when books were few, and the tablet of the memory did duty as both text and index, had learned numerous poems by heart; he surrounded himself with Rāwis or professional memorisers of verse at his court in Egypt. As a mark of appreciation of certain lines of the mulatto slave-poet Nuṣaib,¹ who had some repute for his erotic poetry, panegyrics and threnodies, he had purchased for him his liberty from his Arab masters.² 'Umar reared in such an atmosphere had quite naturally a taste for poetry, and until the alleged metamorphosis induced by his appointment to the solemn duties of the highest post in the State, the Khilāfat, encouraged kindred spirits. On Dukain,³ a Beduin poet, for instance, as a reward for his panegyric he bestowed, during his governorship of Madīnah, fifteen fine she-camels, with a promise to do well by him 'if I be in more affluent circumstances than now, for I have a longing spirit.' After he became Khalifah he redeemed his promise, for when Dukain came to him then, 'Umar said: "... As I told you, I never obtained a thing but my spirit longed for a better; and no sooner I reached the goal of this world than it began to long for the next. I swear I have taken none of the subjects' gear; nor do I possess more than two thousand dirhams, of which take half!" Dukain accepted it, and declared it to be the best-blessed thousand he had ever had experience of, probably attaching to it a sense similar to that expressed by Kuthaiyir,⁴ lover of 'Azzah in classic tale, who received from 'Umar, when Khalifah, three hundred dirhams for verses, and later remarked: "I have never known of a more blessed sum than these three hundred dirhams, for I purchased with them a lass whom I trained to sing, and after sold her for a thousand dinārs."⁵ Dukain is the author of the following lines, which have meet application to 'Umar even if not addressed to him:—

Whose honour has no base tarnish,
Him any cloak will seemly fit;
A soul not far removed from meanness,
No path to name and fame for it.⁶

He himself is said to have sought expression in numbers before his Khilāfat. The following lines are ascribed to him; if authentic, their hortatory sentiment would serve to show that ere yet the impressiveness of his high and holy office had wrought a change in him, his mind was turned to serious thoughts, and grave beyond the years of youth ordinarily:

¹ *Sup.*, VI.

² Selections from the *Agh.*, I, 11–15, ed. Beirut.

³ *Sup.* VI.

⁴ *Sup.*, VI, X.

⁵ *Agh.*, VIII, 154.

⁶ *Agh.*, VIII, 155.

[XII]

Forbid thy heart youthful fancies,
 And dallying with wantonness ;
 For as thy Lord liveth,
 Thinning hair and hoariness
 Hold admonition meet,
 If counsel's voice have access !
 How long, and again, how long
 Thou wilt not turn from thy excess !
 And after thou hast reached the prime,
 Would'st wrest the name of youthfulness.
 Youth is faded past recall,
 Long life is pledge of sadness.
 This my monition heed, and know
 Sufficient against waywardness.¹

During his governorship in Madinah he is said to have shown a turn for musical composition, being credited with seven modes; but the evidence is conflicting, and there are some who would deny him knowledge of or interest in the art of song.²

Meticulous in his concern to appropriate from the public funds for his personal or official estate the utmost minimum, he was also scrupulous in depriving the Banū Umayyah of perquisites they had taken to themselves. Thus he restored unto the Prophet's family the demesne of Fadak, a town near Khaibar, and originally a Jewish settlement, whose yield had been reserved for their maintenance by the Prophet and his successors, but in violation of this its original purpose Mu'āwiyah had assigned it to Marwān, from whom it eventually passed to 'Umar II. Thereby he incurred the displeasure of his kin; to their repeated entreaties for the restoration of such vested interests he turned a deaf ear, till their resentment hardened into hostility, and, according to one set of traditions, into a purpose to rid themselves of him, which they are said to have accomplished by inducing a servant to administer poison to him.³ On the other hand, the plan to poison him is said to have originated in consequence of the "round-table conference" with the representatives of Shaudhab,⁴ for Yazīd's Umayyad supporters feared from it the annulment of his selection to the succession and the loss of their privileges and property.⁵ It seems more likely however that he died a natural death in Khunāsirah or in Dayr Sim'ān.⁶ Toil and morbid care, for he spared himself neither labour nor self-inquisition, and vigils for it is recorded that he spent his nights in prayer or in communion with the doctors of the law on death and the resurrection, the subject of death having

¹ *Suy. o.c.*² *Agh.*, VIII, 149-150.³ *Suy. o.c.*; Abu'l-Fidā, I, 201.⁴ *Sup.*, VII.⁵ *Tab.*, II, 1349.⁶ *Sup.*, X.

apparently a rather unnatural obsession of his mind, wore out [XIII] his frame none too robust at best.¹

He held office for some two years and five months,² a term too short to permit of judgment on the capacity for extended rule of a saint-Khalifah, but as it is he died full of honour as having "filled the earth with justice, removed wrongs, and established good laws,"³ and Muslim tradition has worthily styled him the "fifth Khālifah."⁴

II. The Musnad : (a) General:

The *Musnad* is a half-way house between the tradition-incorporating *Sīrah* or biography of the Prophet by Ibn Ishāq, and the *Muṣannaḥ*, the terminal monuments erected by the labours of the collectors of the great canonical works of Bukhārī, Muslim, etc.⁵ The name is given to the collection since each ḥadīth in it is *musnad* or "supported," having, that is to say, a *sanad* or *isnād*, a list of successive authorities who transmitted it in order from the original authority; in other words, the *isnād* is a chain of witnesses depending from the latter. Such a collection is a "personal" one,⁶ as distinguished from the *Muṣannaḥ*, in which the traditions are arranged according to their subject matter, and their admission to the canon determined by the simple criterion of the acceptability of the *rijāl* or witnesses, this in turn depending on the consensus of opinion of the learned. It does not therefore possess the finality of the latter, and though such Musnads were at one time numerous, and some long continued to be studied, they yet became supplanted by the more usefully ordered canonical works.

After the Prophet's death, traditions (*ḥadīth*, pl. *ahādīth*) preserving his utterances and his manner of action in all the circumstances of his life became frequent on the lips of his followers, and gradually more and more cherished; they gained in importance from their application to matters in which authority could not be deduced from the Qur'ān. Muslims in all lands treasured them; schools formed round traditionists at many centres, and earnest seekers after this lore passed from one to another acquiring both extensively and intensively. Eventually even spurious traditions became rife. The utility of the Ḥadīth for

¹ *Tah.*, VII, p. 476.

² *Tab.*, II, 1361-2.

³ *Suy. o.c.*

⁴ *I. Ath.*, V, 48; *Naw.*, 465.

⁵ Brockelmann, *Ges. d. Arab. Lit.*, I, 157ff.

⁶ Goldziher, *Muh. Studien*, II, 228.

[XIV] ritual and legal praxis had grown so great that before the close of the first century of the Hijrah a desire to collect them was awakened. Some were taken up into the chronologically arranged biographical Sirah-literature, whose aim was to instruct and edify. With the appearance of the Musnad and the Muṣan-naf, in the former of which the ḥadīth are grouped under the head of their original witness—but here under ‘Umar’s immediate witness, and in the latter class according to their content, independently of their source, the science of tradition was inaugurated.

The feature of the Ḥadīth which engaged most attention of the collectors was the isnād, for this constituted its credentials. It appears to be already well-established in the earliest extant works on the traditions and in the Sirah-literature; it is general, e.g., in the *Muwatta’* or collection made by Mālik b. Anas (97-179) of traditions bearing on law and ritual,¹ and evident in *Sirat Rasūlī-l-lāh* of Ibn Ishāq (d. 151)², whose work is preserved in the redaction made and incorporated by Ibn Hishām (d. 218) in his *Sirah*.³ Ibn Ishāq endeavoured to give scientific form to the mass of oral tradition by prefixing the titular authority of the isnād, though he sometimes relates a narrative without any indication of its origin, or merely introduces it with a general formula, “It is said,” “They say,” “A reliable person has told me,” etc.⁴; but though the use of the isnād in Ibn Ishāq is still “very irregular, incomplete, arbitrary, and containing obvious anomalies when compared with the perfect type of Isnād in the time of al-Bukhārī (d. 256 A.H.),”⁵ still the number of instances of its use is sufficient to prove its recognition by this time as an important addition to any *ipse dixit*.

But its first application is earlier than Ibn Ishāq, for it is employed by Mūsā b. ‘Uqbah (d. 141),⁶ and by Mālik b. Muslim az-Zuhri (d. 124).⁷ Whether it was used by ‘Urwah b. az-Zubair (d. 94), the son of a famous Companion of the Prophet, and an authority quoted by az-Zuhri, is a debated point. According to Caetani, ‘Urwah gives no isnād; “the only authority he is pleased to quote is the Qorān. This would imply that even in the time of the Khalīfah ‘Abd al-Malik, i.e., circa 70–80 A.H., therefore over sixty years after the death of the Prophet, a traditionist though at a period now remote from the incidents he narrates did not consider himself obliged to justify in any way the source of the information. It must then be concluded that at the time of ‘Urwah the custom of giving the *isnād* did not yet exist, although now two generations had passed since the death of the Prophet.”⁸ Horovitz on the other hand is

¹ Brock., *Gesch.*, I, 176.

² *Ib.*, 135.

³ *Ib.*, 135.

⁴ Andræ, *Die Person Muhammeds*, 26.

⁵ Caetani, *Annali dell’ Islam*, I, p. 32.

⁶ Brock., *o.c.*, I, 134.

⁷ *Ib.*, 65.

⁸ *O.c.*, p. 31.

disposed to believe that he may have made use of it, and concludes that at any rate there is little doubt it was employed in the generation of traditionists before az-Zuhri, and that we may assume "its first appearance in the Hadīth-literature as being not later than the last third of the first century of the Hijrah."¹

The question has been raised whether the isnād thus found prefixed to the *matn* or portion containing the subject-matter is of Arab origin. Caetani is of opinion that it is not; for "in the larger portion of the authentic traditions the isnād is a much later addition to an ancient text. In other words the idea of the isnād is to be considered as a later product, and not a contemporary of the older hadīth. The isnād was a consequence of the needs of the new civilisation; it bore, so to say, a bureaucratic impress, a certain scientific semblance, which came from the cultured life of the city outside Arabia, and not from the wild desolation of the Arabian deserts. The whole character of the isnād is alien to the restive nature of the primitive Arab, a half-wild person, ignorant, intolerant of any regulation, averse from civic and social custom."² Horovitz agrees with Caetani that a foreign origin must be found for it, and carries the argument a step further. He believes that it is to be traced to a Jewish source, as the same phenomenon is found in Jewish literature of a much earlier date, for instance, in the chain of transmitters of the body of oral teaching of Moses, communicated to him on Sinai, as also of individual traditions of the Mosaic period, where the same care is manifest in preserving the names of witnesses from generation to generation; similarly, but later, with regard to the names of the witnesses for the utterances of the authorities in the Schools; by Talmudic times the lists of such names are of enormous length, and the subject matter is of the most varied nature, opinions on points of law, narratives, etc. A parallel to the manner in which 'Ā'ishah's statements are introduced is illustrated in the introductory chain to a narrative regarding the fate of the corpse of the deceased Rabbi El'azar: "Rabbi Samuel Bar Naḥmēni said, the mother of Rabbi Jonātān related to me that the wife of Rabbi El'azar relates to her." He adds that it is possible that Islām having once borrowed the system of the isnād and developed it on its own lines, may have influenced in its turn the Jewish prototype, for in the Talmudic literature there is no idea of chronological method, and the oldest extant work attempting such arrangement was composed after 885 A.D., more than a century later than the earliest Islamic work on isnād-critique.³ That the idea may have been borrowed from the Jews there can be no gainsaying; and if it were, as probably

¹ *Der Islām*, Bd. VIII, 43-44 (1918).

² *Annali* I, p. 30.

³ *Der Islam*, Bd. VIII, 44-47.

[XVI] it was, it would be no matter for wonder considering the free communication between the regions to the north and the peninsula, and the cultural indebtedness of the latter. Once implanted, it was likely to find a congenial soil in a nation cherishing its far-traced genealogies.

(b). *The Musnad of 'Umar b. 'Abdīl-'Azīz*: MS. No. 7, Govt. of India Collection (1916-).

Though 'Umar deeply interested himself in ḥadīth, and according to this MS. sent out for fuller information regarding some which he had heard of,¹ it was left to a traditionist, al-Bāghandī, of nearly two centuries later to make the collection of such as had his *sanad*. Ibn Hajar² mentions the following as being of the number of those from whom he related :

- | | |
|--|---|
| 1. Anas b. Mālik. | 2. as-Sā'ib b. Yazīd. |
| 3. 'Abdu'l-lāh b. Ja'far b. Abī Tālib. | 4. Yūsuf b. 'Abdī'l-lāh b. Sallām. |
| 5. Khaulah bint Ḥakīm. ⁵ | 6. 'Uqbah b. 'Āmir al-Juhānī. ⁴ |
| 7. Sahl b. Sa'd. ⁵ | 8. 'Abdu'l-lāh b. Ibrāhīm b. Qāriẓ. ⁶ |
| 9. ar-Rabī' b. Sabrah al-Juhānī. | 10. 'Urwah b. az-Zubair. |
| 11. Abū Salmah b. 'Abdī'r-Rahmān. | 12. Abū Bakr b. al-Ḥārith b. Hishām. ⁷ |

As-Suyūṭī⁸ mentions (1), (3), (4), (8), (9), (10) and (12) of the above, and specifies by name three others :

- | | |
|----------------------------|--------------------|
| 13. 'Abdu'l-Azīz b. Marwān | 14. 'Āmir b. Sa'd. |
| ('Umar's father). | |
| 15. Sa'id b. al-Musaiyib. | |

The MS. quotes the authority of the following from the above list :—Nos. 1, 4, 5, 6, 8, 9, 10, 11, 12, 13 (ra), 14, 15 (see Index).

It quotes as 'Umar's authorities the following whose names are not found in the above list (the enumeration continues that of the list) :—

16. Abān b. 'Uthmān b. Affān, A, 14.

¹ *Infra*, ۳, 13; 1A, 17.

² *Tah.*, VII, 790.

³ مرسل however, see *inf.* ۶, 4.

⁴ مرسل يقال; see *inf.* ۱, 3.

⁵ I. Hajar says, 'Umar asked of Sahl a cup from which the Prophet drank.

⁶ Also called : Ibrāhīm b. 'Abdī'l-lāh b. Qāriẓ (*Tah.*, I, 239).

⁷ He is Abū Bakr b. 'Abdī'r-Rahmān b. al-Ḥārith etc., (*Tah.*, XII, 141).

⁸ *Tar. Khul.*

- | | |
|--|---|
| 17. Tamīmu'd-Dāri, ۳, 4. ¹ | 18. Asmā' bint 'Umais, ۵, [XVII] 18. ² |
| 19. Sālim b. 'Abdī'l-lah, ۴, 17. | 20. 'Ā'ishah, ۵, 8. ³ |
| 21. Naufal b. Musāhiq, 11, 24. | 22. Md. b. 'Abdī'l-lāh b. Naufal, 1۸, 1. |
| 23. Abū Burdah, 1۸, 7. | 24. Abū Sallām al-Aswad, 1۸, 15. |
| 25. Sa'īd b. Khālīd, ۲۰, 15. | 26. Yahyā b. al Qāsim, ۲۲, 10. |
| 27. Qays b. al-Ḥārith, ۲۲, 16. | 28. Mu'āwiyah, ۵, 1. |
| 29. Abū Bakr b. Md. b. 'Amr b. Hazm, ۲۵, 1. | 30. 'Abdu'l-lāh b. Mawhib, ۲۵, 17. |
| 31. 'Ubaidu'l-lāh b. 'Abdī'l-lāh b. 'Utbah, ۲۶, 6. | 32. Ubādah b. 'Abdī'l-lāh, ۲۷, 12. |
| 33. Az-Zuhri (Md. b. Muslim), ۲۸, 6. | 34. Salmā, mawlātu Marwān b. al-Ḥakam ۲۹, 6. |
| 35. Md. b. Thābit b. Shuraḥ-bīl, ۳۰, 3. | 36. 'Irāk b. Mālik, ۳۰, 15. |

Of persons who related from 'Umar, it has the following in common with Ibn Ḥajar⁴:—

- | | |
|---|--|
| 1. Ibrāhīm b. Abī 'Ablah. | 2. Abū Bakr b. Md. b. 'Amr b. Ḥazm. |
| 3. Zabbān b. 'Abdī'l-'Azīz. | 4. Az-Zuhri. |
| 5. Abū Salmah b. 'Abdī'r-Rahmān. | 6. 'Abdu'l-lāh b. 'Umar b. 'Abdī'l-'Azīz (۵, 4). |
| 7. 'Abdu'l-'Azīz b. 'Umar b. 'Abdī'l-'Azīz. | 8. 'Amr b. Muhājir. |
| 9. Md. b. Qays. | 10. Ya'qūb b. 'Utbah b. al-Mughīrah. |

And, further, in common with as-Suyūṭī: ⁵

11. Yahyā b. Sa'īd.

The following occur in the MS., but are not mentioned by either of the above:

- | | |
|---------------------------------------|--|
| 12. Ismā'il b. Abī Ḥakīm. | 13. Abū Bakr b. Ḥafṣ. |
| 14. Sulaimān b. 'Āṣim. | 15. Ibn Abī Suwaid. |
| 16. Ṣāliḥ b. Kaysān. | 17. Ṣāliḥ b. Md. b. Zā'idah. |
| 18. Ṣakhr b. 'Abdī'l-lāh b. Ḥarmalah. | 19. [Talḥah b. Yahyā] b. Talḥah b. 'Ubaidī 'l-lāh (1۸, 9). |
| 20. 'Abbād b. Kathīr. | 21. Al-'Abbās b. Sālim. |

¹ مرسل *inf.* ۲, 20.

² مرسل (*Tah.*, XII, 2726).

³ مرسل (*Tah.*, VII, 790).

⁴ *Tah.*, VII, 790.

⁵ *Tar. Khul.*

- [XVIII] 22. 'Abdu'l-lāh b. 'Abdi'r- 23. 'Abdu'l-lāh b. Md. Al-
Rahmān. 'Adawī.
24. 'Abdu'l-lāh b. Md. b. 25. 'Abdu'l-'Aziz b. al-'Ab-
'Aqīl. bās.
26. 'Afif al-Madanī. 27. Md. b. Muhājir.
28. Naufal b. al-Furāt. 29. Yazīd b. Md.

'Umar related from an anonymous authority (رجل) at ۲۴, 8, and is quoted by one at ۲۰, 17.

I. The compiler (*Jāmi'*) of the Musnad was Abū Bakr Md.¹ b. Md. b. Sulaimān al-Azdī², al-Wāsiṭī³, al-Bāghandī; he was known as Ibnul-Bāghandī.⁴ The last nisbah is derived from Bāghand, which as-Sam'ānī supposes to be a village near Wāsiṭ. Enduring great hardships he wandered to cities afar in his zeal to study traditions under the authorities there, and returned to take up his residence in Baghdād. He heard the following besides other traditionists of Syria, Egypt, Baghdād, Kūfah and Baṣrah:—

- | | |
|--|---|
| 1. Md. b. 'Abdi'l-lāh b. Numair (d. 234). ⁵ | 2. Abū Bakr b. Abi Shaybah (d. 235). ⁵ |
| 3. 'Uthmān b. Abi Shaybah (d. 239). ⁷ | 4. Shaybān b. Farrūkh (d. c. 235). ⁸ |
| 5. 'Alī b. 'Abdi'l-lāh b. al-Madīnī (d. 234). ⁹ | 6. Md. b. 'Abdi'l-Malik b. Abi'sh-Shawārib (d. 244). ¹⁰ |
| 7. Suwaid b. Sa'id al-Ḥadathānī (d. 240). ¹¹ | 8. 'Abdur Rahmān b. Ib-rāhīm, Abū Sa'id Duḥaim, ad-Dimashqī (d. 245). ¹² |
| 9. Hishām b. 'Ammār (d. 245). ¹³ | 10. Al-Ḥārith b. Miskīn al-Miṣrī (d. 250). ¹⁴ |

It appears from as-Sam'ānī¹⁵ that three generations of this family were engaged in the study and transmission of tradi-

¹ Yāqūt *Mu. Buld.*, I, 474, has **أحمد**, though borrowing from as-Sam'ānī.

² As-Sam'ānī's *Ansūb*, 60 b, Gibb Mem. Ser., from which the following account is taken.

³ Sam., *ib.*; *Tab.*, *Huf.*, X, 81.

⁴ Sam., *ib.*

⁵ *Tah.*, IX, 463; *Tab. Huf.*, VIII, 26.

⁶ *Tah.*, VI, 1; *Tab. Huf.*, VIII, 20.

⁷ *Tah.*, VII, 298; *Tab. Huf.*, VIII, 28.

⁸ *Tah.*, IV, 629; *Tab. Huf.*, VIII, 30.

⁹ *Tah.*, VII, 575; *Tab. Huf.*, VIII, 15.

¹⁰ *Tah.*, IX, 521.

¹¹ *Tah.*, IV, 470; *Tab. Huf.*, VIII, 43.

¹² *Tah.*, VI, 274; *Tab. Huf.*, VIII, 69; Sam. ' calls him: Duḥaim b. al-Qāsim (*ib.*, 61).

¹³ *Tah.*, XI, 90; *Tab. Huf.*, VIII, 38.

¹⁴ *Tah.*, II, 273; *Tab. Huf.* VIII, 108.

¹⁵ Sam., *ib.*

tions, viz., Md. b. Sulaimān al-Bāghandī; his two sons, Abū [XIX] Bakr Md. and Abū 'Abdī'l-lāh Md.; and Abū Bakr's son Abū Dharr (d. 326). Of Abū 'Abdī'l-lāh he states that he heard Shu'aib b. Ayyūb¹ in Maṣīl, and that he in turn was quoted by Abū'l-Ḥusain Md. b. al-Muẓaffar, who in that case must have related from both brothers, as Abū Bakr Md. al-Bāghandī, collector of the Musnad, is the authority he immediately quotes,² and is evidently the al-Bāghandī referred to in *Tab. Ḥuf.*, XII, 61. Md. b. Sulaimān (d. 283) is there said to have settled in Baghdād; his son, presumably Abū Bakr, succeeded to his heritage of ḥadīth, but it would seem from one account that neither entertained a high opinion of the other's veracity, while, according to Ibn Abī'l-Fawāris, Abū Dharr was more reliable than either his father or his grandfather.

He related his traditions mostly from memory, it is said, and their number and the facility with which he quoted them were remarkable; his mind was so pre-occupied with them that they interfered even with the due course of his obligatory prayers. His opinion as a traditionist was accepted in a vast number of matters of reference. Some, however, have charged him with confusion due to defects of memory, and with "tadlīs."³ This technical term, denoting concealment, and the concealment of a defect in an article one offers for sale, is applied to a *Rāwī* who omits from the chain of authorities the name of his own Shaykh or master, and uses such a non-committal word in connection with the last authority whom he quotes as gives the impression, or permits it to be taken, that he has heard it from him, e.g., قال فلان, or يقول عن فلان. According to 'Abdu'l-Ḥaqq ad-Dihlawī, opinion is divided between the acceptance and the rejection of the ḥadīth of a *mudallīs*. Waki', for example, is said to have summarily dismissed its consideration thus: "The concealment of a defect in a garment offered for sale is not lawful,—so how can it be in the case of Ḥadīth?" The majority of traditionists maintain the view that *tadlīs* should be accepted in the instance of a person like Ibn 'Uyainah who is known to suppress the name of a reliable authority only, and to reject it in such as is wont to suppress the names of persons who are "weak" (ضعيف), etc., until he shall specify his mode of audition with the words سمعت, or حدثنا, or أخبرنا. The resort to *tadlīs* may be due to a bad motive, e.g., in order to conceal the fact of having heard it from a certain Shaykh because of his juniority, or his lack of celebrity and standing. This was not the motive of the renowned traditionists, however, but it was due

¹ *Tah.*, IV, 584.² ۲, 6; ۱۳, 8.³ *Tab. Ḥuf.*, X, 81; adh-Dhahabī, *Tadhk. Ḥuffāz*, II, 272 (Hyder., 1333).

Abū Bakr Md. al-Bāghandī died in 312;⁸ but according to Ibn Athīr (VIII, 118) in 313 A.H.

References to the *Musnad* apparently are rare; Ibn Hajar in his *التلخيص الحبير في تخريج احاديث الراعى الكبير*,⁴ in speaking of the tradition of Mu'āwiyah regarding the Prophet's imprecation contained in the words: ⁵ لعن رسول الله صلعم الواصلة والمستوصلة: ⁶ says that it was related to him as being in the *Musnad* of 'Umar b. 'Abdī'l-ʿAzīz by al-Bāghandī.

II. Abū Bakr Md. al-Bāghandi's *rāwī* was Abū'l-Ḥusain Md. b. al-Muzaffar b. Mūsā al Ḥāfiẓ al-Baghdādī.⁶ He was a zealous and reliable traditionist. Ibn Abī'l-Fawāris says that he told him he had a hundred thousand ḥadīth on al-Bāghandi's authority. Ad-Dāraquṭnī used to attend his ḥadīth-readings; he held him in great respect and would not recline in his presence; he has recorded of him that he was reliable and trustworthy, and a little inclined towards Shi'ism. Abū'l-Walid al-Bāji held a similar opinion regarding this Shi'ite tendency. He

¹ 'Abdu'l-Haqq, *Muqad. to Mishkāt*, lith., Delhi.

² *Mukh. Stud.* II, 48.

³ Sam., *Ansāb*, 61; *Tab, Huf.*, X, 81.

⁴ Lith. Delhi, p. 106; see Brock. *Ges. d. Ar. Lit.*, I, 424, 393.

⁵ Cf. *infra*, A, 12; RV, 5.

⁶ *Infra.* 1, 6; 13, 8, etc.

was born in 286, and died in 379,¹ at an age which is another [XXI] instance of the remarkable longevity of traditionists in those early centuries of Islām.

III. The inheritance passed from him to Abū Md. al-Hasan b. 'Alī b. Md. al-Jauharī, (363-454).² He was born in Baghdād, of a family of Shirāz.³ He heard Abū Bakr Aḥmad al-Qatī'ī (d. 368), and was the last representative of his circle.⁴ He was a reliable and exceedingly keen student and imparter of ḥadīth.⁵

IV. To this traditional lore there succeeded two heirs, (a) Abū'l-Mawāhib Aḥmad, and (b) the qāḍī Abū Bakr Md. al-Anṣārī.

(a) Abū'l-Mawāhib Aḥmad b. Md. b. 'Abdī'l-Malik⁶ b. Mu-lūk al-Warrāq⁷ is presumably the Abū'l-Mawāhib referred to by Yāqūt (*Mu'j. Buld.*, II, 522), who states that though Abū Ḥafṣ 'Umar (*infra*, V) had a unique knowledge of many books, he was not yet acquainted with aught from this traditionist and certain others of the Damascus School.

(b) Abū Bakr Md. b. 'Abdī'l-Bāqī al-Anṣārī (d. 535) was the last of the circle of Abū Md. al-Jauharī.⁸ As-Sam'ānī (506-562) further adds that he himself heard the traditions of the latter directly from him alone of that school.⁹ According to Ibn Athīr (XI, 52), who gives his name as Abū Bakr b. Md., etc., he was for long a qāḍī, and was a man of scholarly habit. Part II¹⁰ of the *Musnad* mentions him along with Abū'l-Mawāhib.

V. Abū Ḥafṣ 'Umar b. Md. b. Mu'ammār¹¹ b. Ṭabarzād (516-607) was the Shaykh of Ibn Athīr, who gives him the *nisbah* of al-Baghdādī. Yāqūt states that he heard al-Kathīr, the popular title of Abū Bakr Md. b. 'Abdī'l-Bāqī al-Anṣārī,¹² mentioned above under IV (b), and that he lived to relate what he heard from him. He gives him the *nisbah* ad-Dāraqazī, and adds that he was much sought after for his traditions, and at the behest of al-Malik al-Muḥassin Aḥmad b. al-Malik an-Nāṣir,¹³ he was conveyed from Baghdād to Damascus, where Aḥmad and a large number of the people of that city

¹ *Tab. Huf.*, XII, 61.

² *Infra*, I, 5; I³, 8.

³ Cf. I. Kh., de Slane, II, 255, n. 3.

⁴ Sam., *Ansāb*, 459; I. Ath., X, 15.

⁵ Sam., *ib.*, 144.

⁶ *Infra*, I, 5.

⁷ I³, 7.

⁸ *Supra*, para. III.

⁹ *Ansāb*, 144.

¹⁰ I³, 6.

¹¹ Al-Mu'ammār in I. Ath. XII, 194; Yāq., II, 522; cf. *inf.*, I, 8, etc.

¹² Sam., *Ansāb*, 144.

¹³ Al-Malik an-Nāṣir Ṣalāhu'd-Dīn Yūsuf b. Ayyūb reigned (after Nūru'd-dīn's death) from 569 to 589 A.H. The name of his twelfth son is known, and of five others, but Aḥmad is not of the number. Raverty, *Tab. Nāṣirī*, 221. nn. 6, 7.

[XXII] heard him. It is said to have been on this occasion that he became acquainted with the traditions having the *sanad* of Abū'l-Mawāhib, and the Damascus School.¹

In Aḥmad 'Alī as-Sahāranpūrī's edition (Delhi, 1765) of the *Jāmi'* of at-Tirmidhī he is quoted in this editor's *sanad* as the authority next after Abū'l-Faṭḥ 'Abdu'l-Malik b. Abī'l-Qāsim 'Abdī'l-lāh, and therefore the fifth in succession to at-Tirmidhī.

VI. Md. b. Abī'l-Qāsim b. Md. b. As'ad b. al-Hakam² al-Hanafī heard these two parts³ of the Musnad read before his Shaykh Abū Hafs 'Umar, usually referred to as Ibn Tabarzaḍ,⁴ and wrote them out for himself, as appears from the colophon,⁵ as he heard them there read by Shihābu'd-Dīn Md., the *Ṣāhibu'l-juz'*,⁶ i.e., owner of the portion of the Musnad contained in these two parts. It is repeated in a colophon that both parts were heard by Md. b. Abī'l-Qāsim, as also by others, being read in the presence of Ibn Tabarzaḍ,—whose authority for them was Abū'l-Mawāhib, and for the second Abū Bakr al-Anṣārī also,—by Shihābu'd-Dīn Md. b. Khalaf b. Rājiḥ al-Maqdisī. The others present at the hearing included Abū'l-Faṭḥ Md. b. 'Abdī'l-Ghanī b. 'Abdī'l-Wāhid al-Maqdisī (567-613),⁷ a traditionist of some note in his own age, and the owner of a copy, on which the names of the members of the audience were recorded at greater length⁸ than here. The date on which the reading and the correction of the copy of Md. b. Abī'l-Qāsim took place was 26th Rajab, 603, at Mt. Qāsiyūn,⁹ without Damascus.

At ʿ1, 16-25, is given a list of those who heard both parts through Ibn Tabarzaḍ, but a word or more at the beginning of each of the ten lines in the original having been cut off in the process of trimming the MS., some of the names cannot be read with certainty.

In 657 A.H. 'Abdu'l-Ḥafīẓ Ibn 'Abdī'l-Mun'im heard both parts read before the Shaykh Badru'd-Dīn Abū Md. 'Abdu'l-Wahhāb¹⁰ by Nāṣiru'd-Dīn Abū'l-Ḥasan 'Alī b. al-Muẓaffar b. Ibrāhīm al-Kindī, and copied it.¹¹

In 663 A.H. it was read in presence of the Shaykh Tājū'd-Dīn Abū'l-Manṣūr Muẓaffar b. 'Abdī'l-Karīm b. Najm,¹² and copied by Aḥmad b. Faraḥ b. Aḥmad b. Md. al-Lakhmī al-Andalusī of Seville in the Madrasah of his Shaykh within Damascus.¹³

¹ *Supra*, IV, (a).

³ *Infra*, 1ʿ, 5; ʿ1, 6.

⁵ ʿ., 22.

⁷ *Tab. Huf.*, XVIII, 6.

⁹ *Yaq.*, IV, 13; Ibn Jubair, 274 (Gibb M.S.).

¹⁰ Cf. ʿ1, 18.

¹² ʿʿ, 6; cf. ʿ1, 23.

² See *infra*, I, n. 3.

⁴ *Tab. Huf.*, XVIII, 13; XIX, 2.

⁶ ʿ1, 5.

⁸ ʿ1, 11.

¹¹ ʿ1, 26ff.

¹³ ʿʿ, 5-15.

The first title-page bears the name of its owner in 1176 [XXIII] A.H., but owing to the edges of the MS. having been trimmed part of it has been cut off; as it stands it reads:

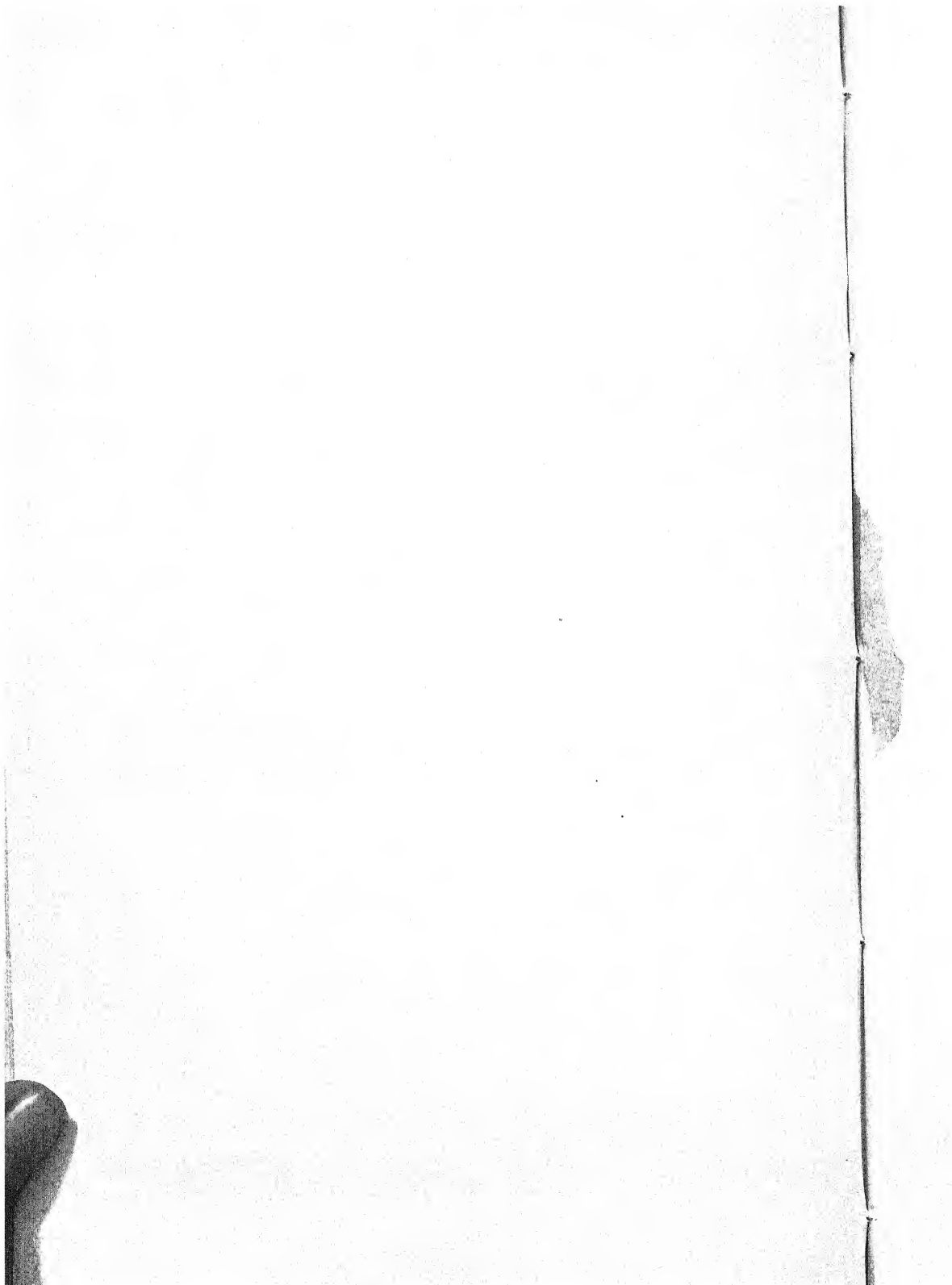
العقير ابراهيم بن ... الرئيس محمد الرمزي تاب الله عليه *

In quite recent times it was bestowed by:

... ابن السيد ظافر الوترى المدني ... العلم الشريف بالمسجد الشريف النبوي on Mawlavī Md. 'Alī Akram, through whom it probably found its way to India. In 1332 A.H. it was in the possession of Shā'iq Ahmad al-'Uthmānī and was eventually purchased by the Council of the Asiatic Society for the Government of India collection of Arabic and Persian MSS. in 1916.

It appears to have been written not later than the 17th century, and may belong to the 16th. It is in ordinary *naskh*, with the word indicating the mode of audition and the headings rubricated throughout. The eleven folios include two title-pages (a) and (a) in the original. The dimensions are: Ext. $7\frac{1}{4}'' \times 5\frac{1}{4}''$; int. $6'' \times 3\frac{1}{4}''$, with 27 lines to the page. Confusion is very obvious in the order of the text on Fol. 10 (b),¹ while the tradition of Asmā' bint 'Umais (e, 18) is altogether wanting; the difficulty at 1, 15—13 can only be surmounted by adding the name of 'Abdu'l-lāh b. Qāriẓ to the heading (1, 15); there are a few errors in transcription; probably due to clerical carelessness, as may be the confusion just noted, or to want of knowledge. *Hamzah* and *tashdīd* are rarely marked, and medial hamzate *yā'* is invariably written as *ya*.

¹ *Intra*, 28, 6—29, 5.



(١)

الجزء الأول من مسند أمير المؤمنين
عمر بن عبد العزيز رحمه
الله تعالى

*Fol. 1a.

جمع أبي بكر محمد بن محمد بن سليمان الباغندي رحمه الله

رواية أبي الحسين محمد بن المظفر العافظ عنه رواية أبي

5

محمد الحسن بن علي بن محمد الجوهري عنه رواية

أبي المواهب أحمد بن محمد بن عبد الملك^١ بجميع

الجزء عنه رواية أبي حفص عمر بن محمد بن

معمر^٢ بن طبرزن عنه سماع محمد بن

أبي القاسم بن محمد بن أسعد

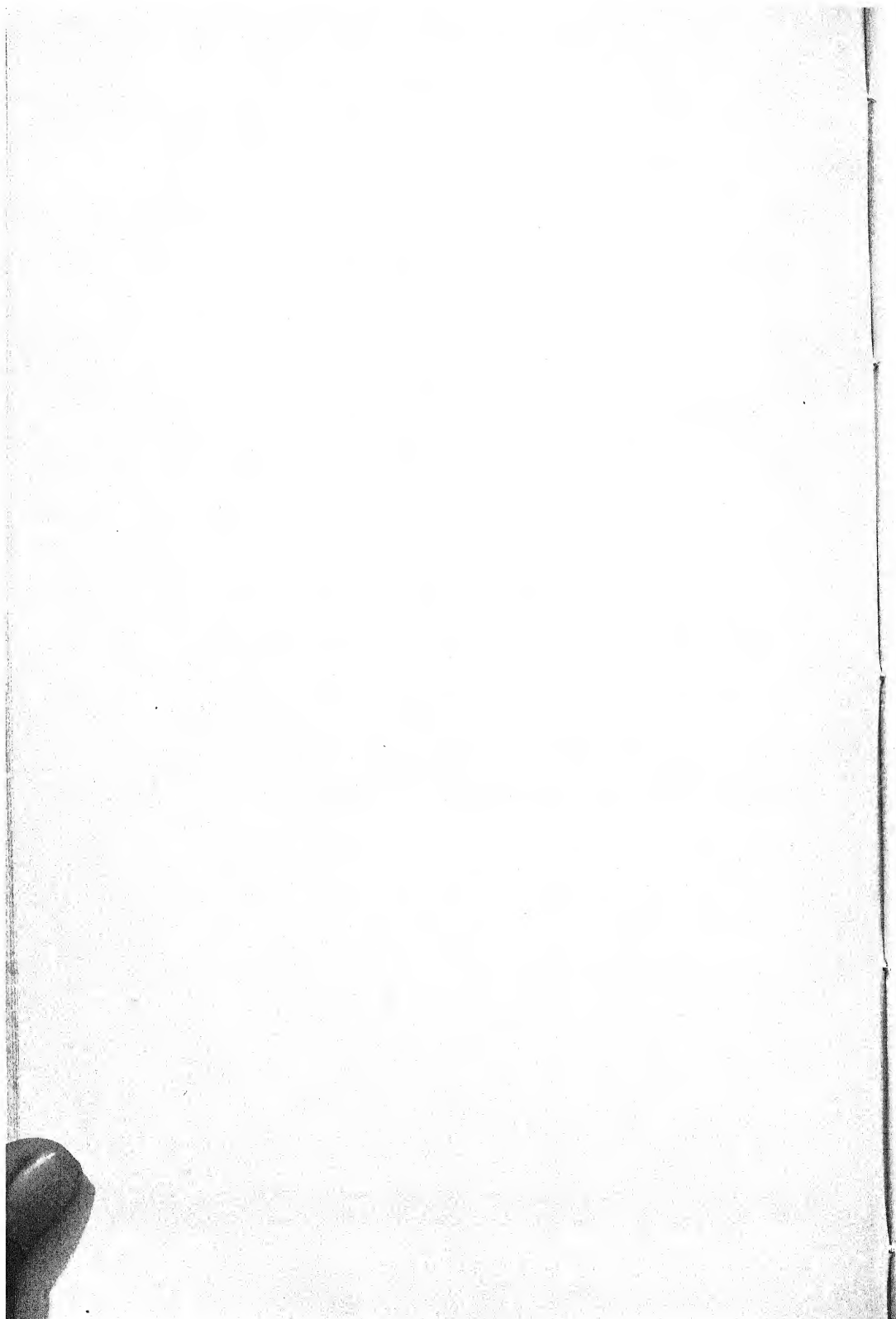
10

ابن الحكم^٣ الحنفي عنه

^١ ١٣، ٥؛ ١٢، ٥؛ ٢، ٥. is added in the margin; see ٢، ٥؛ ١٢، ٥؛ ١٣، ٥.

^٢ المعمر، I. Athīr, XII, 194; Yāqūt, Muʿj. al-Bul., II, 522.

^٣ الحكيم، ٣١، ٦. *infra* ١٢، ١١، ٣٠، ٢٢، الحكيم، ٣١، ٦.



بسم الله الرحمن الرحيم و به استعين

احاديث عمر بن عبد العزيز رضي الله عنه

[عمر بن عبد العزيز عن عقبة بن عامر ¹]

اخبرنا الشيخ الثقة ابو حفص عمر بن طبرزد ² ايده الله قال انا ابو
⁵ المواهب احمد بن محمد بن عبد الملك بن ملوك ³ انا ابو محمد الحسن
ابن علي بن محمد الجوهرى ⁴ انا ابو الحسين محمد بن المظفر بن موسى ⁵
انا ابو بكر محمد بن محمد بن سليمان الباغندي ⁶ نا اسحاق بن ابراهيم
نا عبد العزيز بن محمد الدراوردي عن صالح بن محمد بن زائدة عن عمر
ابن عبد العزيز عن عقبة بن عامر ⁷ قال قال رسول الله صلى الله عليه وسلم
¹⁰ رحم الله حارس العرس ⁸ - حدثني الربيع بن سليمان الشافعي نا اسد بن
موسى نا عبد العزيز بن محمد عن صالح بن محمد عن عمر بن عبد العزيز
قال سمعت عقبة بن عامر يقول ان رسول الله [صلى الله عليه وسلم] قال
رحم الله حارس العرس ⁸ *

عمر بن عبد العزيز عن يوسف بن عبد الله

¹⁵ حدثني عبد السلام بن عبد الحميد نا محمد بن مسلمة عن محمد
ابن اسحاق عن يعقوب بن عتبة عن عمر بن عبد العزيز عن يوسف بن عبد الله
ابن سلام قال كان النبي صلى الله عليه وسلم اذا جلس يتحدث يكثر ان يرفع
بصره الى السماء - حدثني سفيان بن وكيع نا يونس بن بكير عن ابن

¹ Heading supplied from text; cf. 13, 2.

² Intr., XXI. ³ *Ib.* ⁴ *Ib.* ⁵ *Ib.*, XX. ⁶ *Ib.*, XVIII.

⁷ See Ibn Sa'd, *Ṭabaqāt*, IV, 2, 65 (ed. Leiden).

⁸ Cf. 25, 16.

استحاق حدثني يعقوب بن عتبة بن المغيرة عن عمرو بن عبد العزيز عن يوسف (٣)
ابن عبد الله بن سلام عن ابيه ان النبي صلى الله عليه وسلم كان قلماً
يتحدث وذكّر مثله *

عمر بن عبد العزيز عن تميم الداري

٥ نا احمد بن الفرج نا بقة بن الوليد نا يزيد بن خالد الجزي عن يزيد
ابن محمد عن عمرو بن عبد العزيز قال قال تميم الداري نبي رسول الله صلى
الله عليه وسلم عن خمس عن اتخاذ اللهم ولبس الثعال وجلس في المساجد
وان يخلوا بالصف ولبوس الرداء والازار بغير درع *

عمر بن عبد العزيز عن انس بن مالك

١٠ نا ابوامية عمرو بن هشام نا مخلد بن يزيد - وحدثني ابو يوسف
الصيدلاني محمد بن احمد الرقي نا زيد بن علي جميعاً عن جعفر بن برقان
عن عبد الله بن محمد بن عقيل قال قدم انس بن مالك المدينة و عمرو بن
عبد العزيز يومئذ امير عليها فارسلني عمرو بن عبد العزيز اليه اسأله ٢ عن
حديث بلغه حدث به الحجاج بن يوسف في * قوم خرجوا من المدينة فاغاروا
علي سرح المدينة فاستجاش النبي صلى الله عليه وسلم فبعث في طلبهم فاخذ
١٥ منهم ستة نفر فزعم انه صلب منهم اثنين و قطع اثنين و سمر اثنين قال انس
اولئك كانوا اقروا بالاسلام و هاجروا فنزلوا المدينة ثم خرجوا رغبة عن الاسلام
ولحقوا بالعدو فاستحل هاذك منهم قال فولدني عمرو بن عبد العزيز اليه فقال ليت
انك لم تحدث الحجاج بهذا الحديث انما صنع هذا بقوم خرجوا من الاسلام
ولحقوا بالشرك فاستحل هذا منهم وان الحجاج استحل هذا من قوم لم يخرجوا
٢٠ من الاسلام و لم يلحقوا بالشرك قال و امرني عمرو بن عبد العزيز ان اسأله ٢ ما
كان رسول الله صلى الله عليه وسلم يخضب بالحناء فقال انس ان رسول

(٤) الله صلى الله عليه وسلم مُتَّعَ بِسَوَادِ الشَّعْرِ لَوْ عُدَّتْ مَا أَقْبَلَ مِنْ رَأْسِهِ وَ لَحِيَّتِهِ مَا تَجَاوَزَ عَنْ عَشْرِينَ شَيْبَةً أَوْ قَالَ لَمْ تَجِدْ مِنْ شَعْرَةٍ عَشْرَةَ بَيْضَ وَ اللَّفْظُ لِأَبِي يُوسُفَ - **حَدَّثَنِي** عَبْدُ اللَّهِ بْنُ هِشَامَ بْنِ عُبَيْدٍ اللَّهُ قَالَ قَالَ ابْنُ أَدْرِيسَ بْنُ يَحْيَى [عَنْ] بَكْرِ بْنِ مِزْرٍ عَنْ صَخْرٍ بْنِ عَبْدِ اللَّهِ بْنِ حَرْمَلَةَ أَنَّهُ سَمِعَ عُمَرَ بْنَ عَبْدِ الْعَزِيزِ يَقُولُ عَنْ أَنَسٍ أَنَّ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ صَلَّى بِالنَّاسِ فَمَرَّ بَيْنَ أَيْدِيهِمْ حِمَارٌ فَقَالَ عِيَّاشُ بْنُ أَبِي رَبِيعَةَ سُبْحَانَ اللَّهِ سُبْحَانَ اللَّهِ فَلَمَّا سَلَّمَ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ مِنَ الْمَسْبُوحِ أَنْفَاءُ سُبْحَانَ اللَّهِ وَ بِحَمْدِهِ قَالَ أَنَا يَا رَسُولَ اللَّهِ أَنِّي سَمِعْتُ أَنَّ الْكِمَارَ يَقْطَعُ الصَّلَاةَ قَالَ لَا يَقْطَعُ الصَّلَاةَ شَيْءٌ - **قَالَ** الشَّيْخُ أَبُو الْحَسَنِ الْحَافِظُ نَا مُحَمَّدُ بْنُ عُمَرَ الْخَضْرَمِيُّ نَا إِبْرَاهِيمَ بْنَ سَعْدٍ نَا ابْنَ أَدْرِيسَ بْنِ يَحْيَى فَذَكَرَ بِإِسْنَادِهِ مِثْلَهُ - **حَدَّثَنَا** هِشَامُ بْنُ خَالِدٍ الْأَزْرَقِيُّ^١ نَا الْوَلِيدُ بْنُ مُسْلِمٍ عَنْ بَكْرِ بْنِ مِزْرٍ الْمِصْرِيُّ عَنْ صَخْرٍ بْنِ عَبْدِ اللَّهِ الْمَدَلَجِيِّ قَالَ سَمِعْتُ عُمَرَ بْنَ عَبْدِ الْعَزِيزِ يَحْدِثُ عَنْ عِيَّاشِ بْنِ أَبِي رَبِيعَةَ الْمَخْزُومِيِّ قَالَ بَيْنَمَا رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ يَصَلِّي بَوْمًا بِاصْطِكَابِهِ إِذْ مَرَّ بَيْنَ أَيْدِينَا حِمَارٌ فَقَالَ عِيَّاشُ سُبْحَانَ اللَّهِ فَلَمَّا انْصَرَفَ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ 15 أَيُّكُمْ سَبَّحَ قَالَ عِيَّاشُ أَنَا يَا رَسُولَ اللَّهِ سَمِعْتُ أَنَّ الْكِمَارَ يَقْطَعُ الصَّلَاةَ فَقَالَ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ لَا يَقْطَعُ الصَّلَاةَ شَيْءٌ *

عمر بن عبد العزيز عن سالم بن عبد الله

حَدَّثَنِي عُمَرُ بْنُ يَعْقُوبَ بْنِ يَحْيَى الرَّقِيُّ ثَنَا عَبْدُ اللَّهِ بْنُ مُحَمَّدٍ بْنُ أَبِي ^{Fol. 2b.} *إِسْمَاعِيلُ ثَنَا أَبِي عَنْ مَبْشَرِ بْنِ إِسْمَاعِيلَ عَنْ نُوْفَلِ بْنِ الْفَرَاتِ * قَالَ ذَكَرَ عِنْدَ عُمَرَ 20 ابْنُ عَبْدِ الْعَزِيزِ رَفَعَ يَدَيْهِ فِي الصَّلَاةِ فَقَالَ تَرَوْنَ أَنِ سَالِمًا لَمْ يَحْفَظْ عَنْ أَبِيهِ تَرَوْنَ أَبَاهُ لَمْ يَحْفَظْ عَنِ النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ - **قَالَ** ابْنُ الْمُظَفَّرِ وَ ثَنَا ابْنُ² سَاعِدٍ ثَنَا ابْنُ² أَبِي إِسْمَاعِيلَ بِإِسْنَادِهِ نَحْوُهُ *

¹ Ms., الأزرقى ; cf. *Tah.*, XI, 77; *Yāq.*, Index, 760.

² Ms., بن.

(٥) **عمر بن عبد العزيز عن معاوية**
ابن أبي سفيان

حدثنا عطية بن بقيقة بن الوليد ثنا أبي عن بشر بن عبد الله بن عمر بن عبد العزيز عن أبيه عن جدّه قال حج معاوية بن أبي سفيان فلما انتهى المدينة قال ١ وسعيد بن العاص قال فقال معاوية اخوك افقه منك سمعت رسول الله صلى الله عليه وسلم يقول من سرّ اذا رآته الرجال مقبلا ان تمثل له قياما بني الله له بيتا في النار *

عمر بن عبد العزيز عن عائشة رضي
الله عنهما

حدثنا محمد بن المصفى ٢ ثنا بقيقة بن الوليد عن الوزاعي حدثني 10 اسامة بن زيد عن زبان بن عبد العزيز عن عمر بن عبد العزيز عن عائشة عن النبي صلى الله عليه وسلم انه كان يوتر بثلاث يسلم في الركعتين سلاما يسمعن ثم يقوم فيصلي ركعة - حدثني محمد بن خلف العسقلاني ابو نصر ثنا محمد بن يوسف وحدثنا الفضل بن يعقوب الرخاسي حدثنا محمد بن يوسف الفيريابي ثنا الوزاعي عن اسامة بن زيد عن زبان بن عبد العزيز عن 15 عمر بن عبد العزيز عن عائشة قالت كان رسول الله صلى الله عليه وسلم يصلي يفرق بين الشفع والوتر وانا في البيت اسمع تسليمه *

عمر بن عبد العزيز عن أسماء بنت عميس

حدثنا احمد بن محمد القاضي البرقي ثنا ابو معمر عبد الله بن عمرو ابن الحجاج ٣ ثنا عبد الوارث بن سعيد ثنا شيبان بن عبد الرحمان حدثني 20

1 Text faulty; see note.

2 مصفى in Tah., IX, 742; Yāq., Index, 695.

3 الحجاج in Tah., V, 574, and Tab. Huf., VII, 14.

(٦) مسعر عن محمد بن عبد الله عن عبد الله بن ^١ عمر بن عبد العزيز عن ابيه
عن جدة عن اسماء بنت عميس قالت جمع رسول الله صلى الله عليه وسلم
اهله فقال وذكر الحديث *

عمر بن عبد العزيز عن خولة

٥ حدثنا محمد بن ابي عمر العدني و محمد بن عبد الله بن يزيد
و محمد بن ميمون الخياط قالوا ثنا سفيان بن عيينة عن ابراهيم بن ميسرة عن
ابن ابي سويد عن عمر بن عبد العزيز قال زعمت المرأة الصالحة خولة بنت
حكيم امرأة عثمان بن مظعون ان النبي صلى الله عليه وسلم خرج و حسن
و حسين فقال مبخلة مبخلة و قالت مرة اخرى رايت النبي صلى الله عليه
*Fol. 3a. وسلم يقول وانكم لتبخلون . حدثنا ابن ابي عمر و محمد * بن ميمون
الخياط قالوا ثنا سفيان عن ابراهيم بن ميسرة عن ابن ابي سويد عن عمر بن
عبد العزيز قال زعمت المرأة الصالحة خولة امرأة عثمان سمعته يقول يعني
النبي صلى الله عليه وسلم ان آخر طاعة ^٢ و طعتها ربك بوج *

عمر بن عبد العزيز عن سعيد بن

المسيب [و عبد الله بن قارظ] ^٣

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حدثني يحيى بن حكيم المقوم ثنا محمد بن بكر ثنا ابن ^٤ جريج
ثنا ابن شهاب عن حديث عمر بن عبد العزيز عن ابراهيم بن عبد الله بن قارظ
وعن سعيد بن المسيب عن ابي هريرة قال سمعت رسول الله صلى الله عليه
و سلم قال اذا قلت لصاحبك يوم الجمعة انصت و الامام يخطب فقد لغوت -

¹ The text is faulty ; read عمر بن عبد العزيز ; see note.

² Ms., وطية.

³ The second name is supplied from the text ; see note.

⁴ Ms., بن.

- حدثنا عبد الملك بن شعيب بن الليث بن سعد ثنا أبي عن جدى عن (٧) عقیل عن ابن شهاب عن عمر بن عبد العزيز عن عبد الله بن ابراهيم بن قارظ وابن المسيب عن ابي هريرة قال سمعت رسول الله صلى الله عليه وسلم يقول اذا قلت لصاحبك يوم الجمعة انصت و الامام يخطب فقد لغوت - حدثنا ابو ثقی هشام بن عبد الملك ثنا محمد بن حور عن الزبيدي عن الزهري 5 ان عمر بن عبد العزيز اخبره ان عبد الله بن ابراهيم بن قارظ الزهري اخبره انه رأى ابا هريرة يتوضأ على ظهر المسجد فقال اتوضأ من اثار اقط اكلتها واني سمعت رسول الله صلى الله عليه وسلم يقول يتوضأوا منها مسمت النار - حدثني زهير بن محمد ثنا عبد الوزق انا معمر عن الزهري عن عمر بن عبد العزيز عن ابراهيم بن قارظ قال رايت ابا هريرة وهو فوق مسجد يتوضأ 10 فقال اتدرون مما اتوضأ من اثار اقط اكلتها اني سمعت رسول الله صلى الله عليه وسلم يقول يتوضأوا منها مسمت النار و كان الزهري يتوضأ منها غيرت النار - حدثنا الحسن بن داود بن المنكدر ثنا محمد بن اسماعيل بن ابي فديك عن ابن ابي ذئب عن ابن شهاب عن عمر بن عبد العزيز عن عبد الله بن قارظ انه وجد ابا هريرة فوق المسجد يتوضأ فقال له ما اتوضأ الا من اثار 15 اقط اكلته ان رسول الله صلى الله عليه وسلم قال يتوضأوا منها مسمت النار - حدثنا ابو عيسى ثنا ابو عامر ثنا ابن ابي ذئب وثنا عبد الملك بن شعيب بن الليث حدثني ابي عن جدى عن عقیل عن ابن شهاب عن عمر بن عبد العزيز عن عبد الله بن ابراهيم بن قارظ وابن المسيب عن ابي هريرة قال سمعت رسول الله صلى الله عليه وسلم يقول اذا قلت لصاحبك يوم الجمعة 20 انصت و الامام * يخطب فقد لغوت - حدثني محمد بن عثمان بن كرامة ثنا خالد 2 بن مخلد حدثني عبد السلام بن حفص عن اسماعيل بن ابي حكيم عن عمر بن عبد العزيز عن عبد الله بن ابراهيم بن قارظ انه رأى ابا هريرة يتوضأ فوق ظهر المسجد فقال ما هذا الوضوء قال ابو هريرة و ما تدري مما اتوضأ اتوضأ من اثار اقط و اني سمعت رسول الله صلى الله عليه وسلم يقول يتوضأوا 25

*Fol. 3b.

(٨) مما مست النار - حدثنا عبد الرحمن بن عبد الله بن عبد الحكيم ثنا ابي
 ثنا بكر بن مضر عن جعفر بن ربيعة عن بكر بن سوادة عن محمد بن مسلم
 ابن شهاب عن عمرو بن عبد العزيز عن عبد الله بن ابراهيم بن قارظ قال رايت
 ابا هريرة يتوضأ على ظهر المسجد وقد اكل اثار اقط فتوضأ فقلت فتوضأ من اثار
 ٥ اقط فقال اتوضأ اني سمعت رسول الله صلى الله عليه وسلم يقول توضؤوا مما
 مست النار - حدثنا حمد بن عمرو ابو الطاهر ويونس بن عبد الاعلى واحمد
 ابن عبد الرحمن قالوا ثنا عبد الله بن وهب اخبرني عبد الجبار بن عمر ان ابن
 شهاب حدثه ان عمر بن عبد العزيز حدثه عن ابراهيم بن عبد الله بن قارظ
 قال سمعت معاوية بن ابي سفيان وهو على المنبر بالمدينة ابن فقهاؤكم يا
 ١٥ اهل المدينة اني سمعت رسول الله صلى الله عليه وسلم عند منبره ينهى عن
 مثل هذه القصة ثم وضعها على راسه فلم ارها على عروس عند عرس ولا غيره
 اجمل منها على معاوية يقول لعن الله الواشمة و المتنمصة و النامصة
 و الواشرة * و المستوشمة *

عمر بن عبد العزيز عن ابلان بن عثمان

١٥ حدثني احمد بن محمد بن عمر بن يونس اليمامي ثنا محمد بن
 العباس الاموي ثنا بشر بن عبد الله بن عمر بن عبد العزيز عن ابيه عن جده
 عن ابلان بن عثمان بن عفان عن ابيه عثمان بن عفان ان النبي صلى الله عليه
 و سلم معد حراء ٥ فارتج بهم فقال رسول الله صلى الله عليه وسلم اسكن
 حري ٥ فما عليك الا نبي او صديق او شهيد و عليه رسول الله صلى الله عليه

١ Ms. omits; cf. ١٣, ١٧, ٢٧, ٦.

٢ Ms., بن.

٣ Ms. has a marginal note: التي تلتف الشعر من وجهها.

٤ Marg. note: الواشرة المرأة التي تشر (Ms. تسر) اسنانها.

٥ Ms., حرا.

٦ Yāq. (II, 228) rejects this form in favour of حراء; it occurs in Tab. (I 944, 945).

و سلم و ابو بكر و عمرو و عثمان و على و طلحة و الزبير و سعد و سعيد بن زيد (٩)
رضي الله عنهم *

عمر بن عبد العزيز عن ابي بكر ابن عبد الرحمان

حدثنا ابو بكر و عثمان ابنا ابي شيبة والعباس بن يزيد قالوا حدثنا ٥

سفيان بن عيينة عن يحيى بن سعيد عن ابي بكر بن محمد بن عمرو بن حزم
عن عمر بن عبد العزيز عن ابي بكر بن عبد الرحمان بن العارث بن هشام عن
ابي هريرة قال سجدنا مع رسول الله * صلى الله عليه و سلم في اذا السماء
انشقت ١

*Fol 4a

حدثنا اسحاق بن موسى الانصارى و عمرو بن عبد الله و العباس
ابن يزيد قالوا ثنا سفيان بن عيينة عن يحيى بن سعيد عن ابي بكر بن محمد 10
ابن عمرو بن حزم عن عمر بن عبد العزيز عن ابي بكر بن عبد الرحمان بن العارث
ابن هشام عن ابي هريرة عن النبي صلى الله عليه و سلم قال من وجد متاعه عند
رجل قد افلس بعينه فهو احق به - حدثنا ابن 2 المقرئ ثنا سفيان عن عمرو
ابن دينار عن هشام بن يحيى عن ابي هريرة عن النبي صلى الله عليه و سلم
بمثله - حدثنا ابن المقرئ ثنا سفيان عن عمرو بن دينار عن يحيى بن 15
سعيد عن ابي بكر بن محمد عن عمر بن عبد العزيز عن النبي صلى الله عليه
و سلم بمثله - حدثنا ابو موسى الانصارى ثنا انس بن عياض عن يحيى بن
سعيد عن ابي بكر بن محمد عن عمر بن عبد العزيز عن ابي بكر بن عبد
الرحمان عن ابي هريرة عن النبي صلى الله عليه و سلم بمثله - حدثنا
ابو موسى ثنا معن بن عيسى ثنا مالك 3 بن انس عن يحيى بن سعيد عن ابي 20
بكر بن محمد بن عمرو بن حزم عن عمر بن عبد العزيز عن ابي بكر بن عبد
الرحمان عن ابي هريرة قال قال رسول الله صلى الله عليه و سلم ايما رجل افلس
فادرك رجل ماله بعينه فهو احق به من غيره - حدثنا احمد بن عبد الله ثنا

1 Qur., LXXXIV, 1.

2 Ms., بن.

3 Ms., ملك.

(١٠) عبد الرحمان بن مهدي عن مالك عن يحيى بن سعيد عن ابي بكر بن محمد
 عن ابي بكر بن عبد الرحمان عن ابي هريرة عن النبي صلى الله عليه وسلم
 ولم يذكر عمر بن عبد العزيز - **حدثنا** ابو الطاهر ثنا عبد الله بن وهب
 اخبرني مالك عن يحيى عن ابي بكر بن محمد عن عمر بن عبد العزيز عن
 5 ابي نكر عن ابي هريرة عن النبي صلى الله عليه وسلم بمثله - **حدثنا** عيسى
 ابن حماد زغبة ثنا الليث بن سعد عن يحيى بن سعيد عن ابي بكر بن محمد¹
 عن عمر بن عبد العزيز عن ابي بكر بن عبد الرحمان بن الحارث بن هشام عن
 ابي هريرة عن رسول الله صلى الله عليه وسلم قال ايها امرؤ افلس ثم وجد
 رجل متاعه عنده بعينه فياولى بها من غيره - **حدثنا** ابراهيم بن عبد² الله
 10 ابن حاتم ثنا حماد بن زيد عن يحيى بن سعيد عن ابي بكر بن محمد عن عمر
 ابن عبد العزيز عن ابي بكر بن عبد الرحمان بن الحارث بن هشام عن ابي
 *Fol. 4b. هريرة ان النبي صلى الله عليه وسلم * قال اذا افلس الرجل فوجد سلعته بعينها
 فمواحق بها - **حدثنا** ابن³ المقرئ ثنا سفيان عن عمرو بن دينار عن هشام
 ابن يحيى عن ابي هريرة عن النبي صلى الله عليه وسلم بمثله - **حدثنا** ابن
 15 المقرئ ثنا سفيان عن عمرو عن يحيى بن سعيد عن ابي بكر بن محمد عن
 عمر بن عبد العزيز عن النبي صلى الله عليه وسلم بمثله - **حدثنا** ابو موسى
 الانصارى ثنا انس بن عياض عن يحيى بن سعيد عن ابي بكر بن محمد عن
 عمر بن عبد العزيز عن ابي بكر بن عبد الرحمان عن ابي هريرة عن النبي صلى
 الله عليه وسلم بمثله - **حدثنا** ابو موسى الانصارى ثنا معن بن عيسى ثنا
 20 مالك بن انس عن يحيى بن سعيد عن ابي بكر بن محمد عن عمر بن عبد
 العزيز عن ابي بكر بن عبد الرحمان عن ابي هريرة قال قال رسول الله صلى
 الله عليه وسلم ايها رجل افلس فادرك رجل ماله بعينه فهو احق به من غيره -
حدثنا احمد بن عبد الله ثنا عبد الرحمان بن مهدي عن مالك بن انس
 عن يحيى بن سعيد عن ابي بكر بن محمد عن ابي بكر بن عبد الرحمان عن

¹ Ms., repeats بن محمد — an obvious tautology.

² Ms., عبيد.

³ Ms., بنان.

ابي هريرة عن النبي صلى الله عليه وسلم و لم يذكر عمر بن عبد العزيز- (١١)
 حدثنا ابو الطاهر ثنا ابن^١ وهب اخبرني مالك عن يحيى عن ابي بكر بن
 محمد عن عمر بن عبد العزيز عن ابي بكر عن ابي هريرة عن النبي صلى الله
 عليه وسلم بمثله - حدثنا عثمان بن ابي شيبة و ابراهيم قالنا هشيم انا
 يحيى بن سعيد عن ابي بكر بن محمد عن عمر بن عبد العزيز عن ابي بكر بن^٥
 عبد الرحمن عن ابي هريرة قال قال رسول الله صلى الله عليه وسلم من وجد
 عين ماله بيد رجل قد افلس فبواحق به ممن سواه من الغرماء - حدثنا
 محمد بن عبد الله بن عمار الموصلى ثنا زيد بن ابي الزرقاء قال سئل
 سفيان عن رجل ابتاع متاعاً فافلس وهو بعينه فلم ينقذه او نقد طائفة من الثمن
 هل ياخذ متاعه فحدث عن يحيى بن سعيد عن ابي بكر^٢ محمد بن عمرو بن حزم^{١٠}
 عن عمر بن عبد العزيز عن ابي بكر بن عبد الرحمن بن الحارث بن هشام عن
 ابي هريرة عن النبي صلى الله عليه وسلم قال من ابتاع سلعة ثم افلس صاحبها
 فوجدها فهو احق بها دون الغرماء *

آخر الجزء الاول و الحمد لله رب العالمين *

^١ Ms., بن.

^٢ Ms., omits بن ; see Tab., II, 1346; cf. sup., ٩, 6, etc.

الجزء الثاني من مسند أمير المؤمنين

*Fol. 5a.

عمر بن عبد العزيز

رحمه الله ورضي عنه جمع أبي بكر محمد بن محمد بن سليمان الباغندي رواية

أبي الحسين محمد بن المظفر الحافظ عنه رواية أبي محمد الحسن بن

علي بن محمد الجوهري عنه رواية أبي المواهب أحمد بن محمد

5

ابن عبد الملك بن ملوك الوراق^١ والقاضي أبي بكر محمد بن

عبد الباقي بن محمد بن عبد الله الأنصاري^٢ كلاهما

عن الجوهري رواية أبي حفص عمر بن محمد بن

معمر بن طبرزد عنهما سماع صاحبه محمد بن

أبي القاسم بن محمد بن أسعد بن

10

الحكيم^٣ منه نفعه الله بالعلم

أمين اللهم آمين والحمد

لله رب العالمين

^١ See ١٣, 7; cf ١, 7; ٢, 5.

^٢ See ١٣, 6; ٣١, 3; Introd.

^٣ See ١, 11, n. 3.



بسم الله الرحمن الرحيم

[ما بقى من احاديث ابي بكر

ابن عبد الرحمان]^١

اخبرنا الشيخ ابو حفص عمر بن محمد بن معمر بن طبرزد البغدادي
٥ اثابه الله قراءة عليه و انا اسمع في يوم الاثنين سادس عشرين^٢ رجب سنة
ثلاث وستمائة انا الشيخان القاضي ابوبكر محمد بن عبد الباقي الانصاري
وابو المواهب احمد بن محمد بن ملوك الوراق قراءة عليهما و انا اسمع قال انا ابو
محمد الحسن بن علي بن محمد الجوهري قراءة عليه انا ابو الحسين بن المظفر
ثنا ابو بكر محمد بن محمد الباغدادي ثنا محمد بن زنبور^٣ الابطحي ثنا عبد
١٠ العزيز بن ابي حازم ثنا يزيد بن الهاد عن ابي بكر بن محمد بن عمرو بن حزم
عن عمر بن عبد العزيز عن ابي بكر بن عبد الرحمان عن ابي هريرة ان رسول
الله صلى الله عليه وسلم يقول ايما رجل ادرك سلعته عند رجل قد افلس
فهواحق بها - **حدثنا** احمد بن عمرو بن السرح ثنا موسى بن زبيدة الجمحي
حدثني يزيد بن الهاد عن ابي بكر بن محمد بن عمرو بن حزم عن عمر بن
١٥ عبد العزيز عن ابي بكر بن عبد الرحمان بن العارث بن هشام عن ابي هريرة
اقال قال رسول الله صلى الله عليه وسلم ايما رجل ادرك سلعة بعينها عند رجل
قد افلس فهواحق بها - **حدثني** عبد الرحمان بن عبد الله بن عبد الحكم
ثنا ابي ثنا بكر بن مضر عن ابن الهاد عن ابي بكر بن محمد بن عمرو بن عبد
العزيز عن ابي بكر بن عبد الرحمان عن ابي هريرة رضي الله عنه عن النبي
٢٠ صلى الله عليه وسلم بمثله - **حدثني** النضر بن سلمة المروزي ثنا يحيي

¹ The heading has been supplied from the context.

² Cf. ٣١, 13, where the modern form عشرين is found (Wright, *Ar. Gram.*, II, § 108).

³ Ms. unpunctuated: see note at ٢٢, 6.

ابن ابراهيم بن ابي قتيبة^١ ثنا العباس بن المغيرة بن عبد الرحمان المخزومي (١٤)
 عن عبد الرحمان بن المغيرة المخزومي عن اسماعيل بن رافع عن عفيف المدني
 عن عمر بن عبد العزيز عن ابي بكر بن عبد الرحمان بن العارث بن هشام عن
 ابيه عن عمر بن الخطاب عن رسول الله صلى الله عليه [وسلم] ان الله بدأ^٢
 هذا الامر جبرية^٣ ثم نبوة رحمة^٤ ثم يكون خلافة ثم يكون سلطانا ويكون^٥ ملكا^٥
 ثم يكون^٥ جبرية^٥ ثم يكون^٥ جابرة - حدثنا عمرو بن عثمان بن سعيد
 بن كثير بن دينار القرشي الحمصي ثنا بشر بن شعيب بن ابي حمزة عن ابيه
 عن الزهري حدثني عمر بن عبد العزيز عن حديث نوفل بن مساحق انه
 اتى عمر بن الخطاب و عثمان بن حنيف في المسجد و الناس مختلطون
 بهما لا يسمعون نجواهما معهما^٦ احد * فلا يزالا يتجاولان في الراى حتى
 غضب عثمان بن حنيف عمر في بعض ما يكلمه فيه فقبض عمر رضي الله عنه
 من حصاة^٧ المسجد قبضة فحصب بها وجه عثمان رضي الله عنه فشجه
 العصابة^٨ بجبينه آثار من شجاج فلما رأى عمر كثرة الدم ينشأ عليه من
 الدم على لحيته قال امسح عنك الدم فعرف عثمان ان عمر قد ندم على ما
 فرط منه فقال يا امير المؤمنين لا يبولئك الذي اصببت مني فوالله اني لانتك^٩
 ممن وليتني^{١٠} امرأة من رعيك الذي^{١١} استرعاك الله اكثر مما^{١٢} فعلت
 بي منهم^{١٣} فاعجب بها عمر رضي الله عنه من رايه و كلمه و حكمه^{١٤} فازداد
 في عينه خيرا - حدثنا اسحاق بن مويذ ثنا ابن^{١٥} ابي اويس حدثني اخي

^١ Ms., قتيبة; *Tah.*, XI, 298, قتيبة; *Lis. Mîz.*, VI, 568, قتيبة.

^٢ Ms., بدأ.

^٣ Ms., جبرية.

^٤ Ms., رحمة.

^٥ Ms., تكون.

^٦ The text should probably read, as at ١٥, 2, لا يسمع نجواهما احد; *is evidently a mistake, unless part of the text has been omitted.*

^٧ Ms., حصاة.

^٨ Ms., العصا; or it may be corrected into الحمصى.

^٩ Ms., لا يهلك; cf. *inf.*, n. ١٥, 7.

^{١٠} Ms., وليتني.

^{١١} Cf. ١٥, 8, والتي.

^{١٢} Ms., فما.

^{١٣} *is omitted at ١٥, 8.*

^{١٤} Cf. ١٥, 9, حلته.

^{١٥} Ms., بن.

(١٠) عن نوفل بن مساحق^١ انه انتحى عمر بن الخطاب و عثمان بن حنيف رضي الله عنهما في المسجد و الناس مختلطون بهما لا يسمع نجاتهما احد فلم يزل يتناجيان في الدار^٢ حتى اغضب عثمان بن حنيف عمر في بعض ما تكلمه^٣ به فقبض حصبا من حصيات المسجد فحصبها وجه^٤ عثمان بن حنيف فشجه بالحصا^٥ بعجبهته آثار من شجاج فلما رأى عمر كثرة تشرب الدم على لحيته قال امسك عنك الدم فعرف عثمان بن حنيف ان عمر قد ندم على ما فرط منه فقال يا امير المؤمنين لا يهولك الذي اصببت مني فوالله اني لانتهك^٦ ممن وليتني امرة من رعيتك التي استرعاك الله اكثر مما انتهكت مني قال فعجب بها عمر من رايه و حلمه و ازداد في عينه خيرا *

١٠ عمر بن عبد العزيز عن عروة بن الزبير

حدثنا محمد بن عبد الله بن المبارك المخزومي^٧ ثنا الحسن بن موسى الاشيب ثنا شيبان بن عبد الرحمان عن يحيى بن ابي كثير عن ابي سلمة ابن عبد الرحمان عن عمر بن عبد العزيز عن عروة بن الزبير عن عائشة رضي الله عنها ان رسول الله صلى الله عليه و سلم كان يقبلها وهو مائم -
١٥ قال الشيخ و ثنا عبد الله بن سليمان بن الاشعث ثنا يزيد بن عبد الله بن زريق ثنا الوليد ثنا الازاعي عن يحيى بن ابي كثير عن ابي سلمة بن عبد الرحمان عن عمر بن عبد العزيز عن عروة عن عائشة رضي الله عنها ان النبي صلى الله عليه و سلم كان يقبل وهو مائم - حدثني ابر بكر بن عسكر ثنا يحيى بن صالح ثنا معاوية بن سلام عن يحيى بن ابي كثير عن ابي سلمة بن عبد الرحمان عن عمر

^١ Ms., مساحق.

^٢ الدار is an error; الرأي should be read; cf. ١٤, 10.

^٣ cf. ١٤, 11.

^٤ The text should probably read: حصياء من حصيات المسجد فحصب بها وجه.

^٥ Ms. بالحصا; cf. ١٤, 13.

^٦ Ms., لانتهك.

^٧ Ms. والمخزومي, but cf. Tah., IX, 452; Tab. Huj., VIII, 115; Sam., 513b.

ابن عبد العزيز عن عروة عن عائشة ان النبي صلى الله عليه وسلم كان يقبل وهو (١٦)

صائم - **حدثني** ابراهيم بن مروان * بن محمد ثنا ابي ثنا معاوية بن سلام *Fol. 6b. الاطرالسبي ثنا يحيى بن ابي كثير حدثني ابو سلمة ان عمر بن عبد العزيز اخبره ان عروة بن الزبير اخبره ان عائشة اخبرته ان رسول الله صلى الله عليه وسلم كان يقبلها وهو صائم - **حدثني** محمد بن عبد الرحيم البرقي ثنا عبد الله 5 ابن صالح ثنا الليث بن سعد عن خالد بن يزيد عن سعيد بن ابي نلال عن ربيعة ابن ابي عبد الرحمن عن صالح بن كيسان ان عروة بن الزبير حدثه عن عائشة زوج النبي صلى الله عليه وسلم قالت 1 كانت الصلاة ركعتين في الحضر والسفر فافترت صلاة السفر على ركعتين واتمت صلاة الحضر اربعاً قال فاخبرنا عمر بن عبد العزيز فقال ان عروة قد اخبرني ان عائشة كانت تصلي اربع ركعات في السفر 10 فوجدت يوماً عروة عند عمر بن عبد العزيز فقلت كيف اخبرتني 2 عن عائشة فحدث به كما حدثتني فقال له عمر بن عبد العزيز انت حدثتني انما كانت تصلي في السفر اربعاً فقال بلى - **حدثني** احمد بن يحيى السوسي ثنا محمد بن عمر ثنا محمد بن خالد عن اسماعيل بن ابي حكيم عن عمر بن عبد العزيز عن عروة عن عائشة رضي الله عنها و ابن 3 ابي حبيبة عن داود بن الحصين عن 15 عروة عن عائشة قالت كان رسول الله صلى الله عليه وسلم يصلي من الليل وانا بين يديه معترضة على فراشه قال ابن 4 ابي حبيبة و زاد ابن 4 خالد في حديثه اعترافاً 5 فاذا اراد ان يوتر ايقظني فاوترت - **حدثني** احمد بن عمر ابن عبد الرحمن ثنا عبيد 6 الله بن موسى ثنا شيبان عن يحيى بن ابي كثير عن ابي سلمة بن عبد الرحمن عن عمر بن عبد العزيز عن عروة بن الزبير عن 20 ابي ايوب رضي الله عنه قال قال سئل رسول الله صلى الله عليه وسلم عن الرجل يجامع امرأته فلا ينزل قال يتوضأ وضوءاً للصلاة ويغسل مذكأته - **حدثنا** اسحاق بن ابراهيم بن سويد الرضلي ثنا ايوب بن سليمان بن بلال حدثني ابو بكر 7 عبد الحميد بن ابي اوبس عن سليمان بن بلال اخبرني يحيى بن سعيد

1 Ms., قال.

2 Ms., اخبرني.

3 Ms., و ابن.

4 Ms., بن.

5 Ms., اعترافاً.

6 Ms., عبد.

7 Ms. reads. ابو بكر بن, but cf. Tah., VI, 237.

(١٧) عن أبي بكر بن حزم عن أبي مسعود الأنصاري قال أتني جبرئيل إلى مسعود عليهما الصلاة والسلام حين زاعت الشمس ومالت فقال قم فصل ١ الظهر أربعاً ثم أتاه حين كان ظل كل شيء مثله قال قم فصل العصر أربعاً ثم أتاه حين غابت الشمس فقال صل المغرب فصلى المغرب ثم أتاه حين غاب الشفق ٥ قال قم فصل فصلى العشاء الآخرة أربعاً ثم أتاه حين أضاء الفجر وأسفر *Fol. 7a. قال قم فصل فصلى الصبح ركعتين ثم أتاه من الغد لصلاة الظهر حين * كان ظل كل شيء مثله فصلى الظهر أربعاً ثم أتاه حين كان ظل كل شيء مثله ٢ فصلى العصر أربعاً ثم أتاه للوقت الأول حين غابت الشمس فصلى المغرب ثم أتاه بعد ما غاب الشمس واطلم فصلى ٣ العشاء الآخرة ثم أتاه بعد أن أضاء الفجر وأسفر فصلى الصبح ركعتين ثم قال جبرئيل عليه السلام يا رسول الله ما بين هذين ٤ صلاة يريد الوقت - **حدثنا** إسحاق بن إبراهيم ثنا أيوب ابن سليمان حدثني أبو بكر عن سليمان بن بلال عن يحيى بن سعيد أخبرني عمر بن عبد العزيز مثل هذا الحديث سواء ٥ إلا أنه قال في حديثه قال جبرئيل عليه السلام هذه صلاتك وصلاة الأنبياء قبلك - **حدثنا** إسحاق بن إبراهيم 15 ثنا عبد الملك بن عبد الحكم ثنا أيوب بن عتبة أبو يحيى من بني قيس بن ثعلبة قاضي اليمامة قال سمعت أبا بكر بن محمد بن عمرو بن حزم و كان قاضي عمر ابن عبد العزيز يقول حدث عروة بن الربيع عمر بن عبد العزيز عن أبي مسعود الأنصاري و عن بشير بن أبي مسعود كلاهما صحبا رسول الله عليه وسلم أن جبرئيل عليه السلام جاء إلى رسول الله صلى الله عليه وسلم وذكر الحديث 20 نحوه أو شبهه أو مثله *

١ Ms. reads فصلى .

٢ Ms., مثله .

٣ Ms., فصلا .

٤ Ms., هذين .

٥ Ms., سوا .

(١٨) عمر بن عبد العزيز عن محمد بن عبد الله بن نوفل

حدثنا محمد بن عوف ثنا بشر بن شبيب اخبرني ابي عن الزهري اخبرني عمر بن عبد العزيز ان محمد بن عبد الله بن نوفل اخبره انه رأى اصامة بن زيد رضي الله عنهما في مسجد رسول الله صلى الله عليه وسلم مضطجعا احدي رجليه على الاخرى يتعني النصب *

عمر بن عبد العزيز عن ابي بردة

حدثنا ابراهيم بن عبد الله بن حاتم^١ ثنا يحيى بن سليم ثنا عبد الله ابن خثيم^٢ يحدث عن بعض ولد طلحة بن عبيد الله قال كنت عند عمر بن عبد العزيز فدخل عليه ابو بردة بن ابي موسى فحدثه باحاديث عن ابيه عن^{١٠} رسول الله صلى الله عليه وسلم فدعا عمر بن عبد العزيز بقرطاس ودواة وكتب احاديثه وكان فيها^٣ حدث قال سمعت ابي يحدث يقول سمعت رسول الله صلى الله عليه وسلم يقول اعلمي الامة المرحومة جعل عذابها في الدنيا فاذا كان يوم القيامة اتي باهل الاديان فاعطى كل رجل رجلا فقليل هذا فداؤك من النار *

١٥ عمر [بن عبد العزيز] عن ابي سلام

حدثنا اسحاق بن ابراهيم ثنا اسماعيل بن عياش عن محمد بن المهاجر^٤ عن العباس بن سالم قال بعث عمر بن عبد العزيز الى ابي سلام الحبشي فعمل على البريد فلما قدم على عمر بن عبد العزيز^{*} قال يا امير المؤمنين لقد شق عليّ معمل على البريد قال عمر ما اردنا المشقة بك يا ابا سلام ولكنه بلغني عنك حديث ثوبان مولى رسول الله صلى الله عليه وسلم في العوض^{٢٠}

^١ Ms., خاتم.

^٢ Ms., خثيم.

^٣ The text is faulty ; فيها should probably be read for في ما .

^٤ Usually written مهاجر , e.g. *inf.*, ٢١, 13 ; *Tah.*, IX, 771.

(١٩) فاحببت ان اشانهك به قال ابو سلام سمعت ثوبان مولى رسول الله صلى الله عليه وسلم يقول سمعت رسول الله صلى الله عليه وسلم يقول ان حوضي من عدن الى عمان البلقاء^١ ماؤه اشد بياضا من اللبن واحلى من العسل اكاويبه عدد نجوم السماء من شرب منه شربة لم يظمأ^٢ بعده ابداً اول الناس ورودا عليه فقراء المهاجرين فقال عمر بن الخطاب يا رسول الله من هم قال هم الشعث رؤسا^٣ الدنس ثيابا الذين لا ينعكسون المتمنعات ولا تفتح لهم ابواب السدد قال عمر بن عبد العزيز لا جرم والله قد فتحت لى ابواب السدد و نكحت المتمنعات فاطمة بنت عبد الملك الا ان يرحمني الله تعالى لا جرم لا ادهن^٤ راسي حتي يشعث^٥ ولا اغسل^٦ ثوبي الذي يلي^٧ جسدي حتي يتسخ^٨ - حدثنا محمود بن خالد الدمشقي ثنا سويد بن عبد العزيز ثنا شداد^٩ ابو عبد الله عن ابي سلام الاسود قال بعث الى عمر بن عبد العزيز قال فقدمت عليه فلما دخلت قال لي اُدْنُ حَتَّى كَانَتْ رِكَبَتِي تَلْزِقُ بَرَكَبَتَهُ فَقَالَ حَدَّثَنِي حَدِيثُ ثَوْبَانَ عَنْ رَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ فِي الْحَوْضِ قَالَ سَمِعْتُ ثَوْبَانَ يَحْدُثُ عَنْ رَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ حَوْضِي كَمَا بَعْدَ عَدْنٍ إِلَى عَمَانَ أَحْلَى مِنَ الْعَسَلِ أَشَدَّ بَيَاضًا مِنَ اللَّبَنِ أَكَاوِيْبُهُ كَنُجُومِ السَّمَاءِ مَنْ شَرِبَ مِنْهُ شَرْبَةً لَمْ يَظْمَأْ^{١٠} بَعْدَهَا أَبَدًا وَ أَوَّلُ النَّاسِ عَلَى وَرُودِهَا الْمُهَاجِرُونَ الشَّعْثَةُ^{١١} رُؤَسَا وَ الدَّنَسُ ثِيَابًا الَّذِينَ لَا يَفْتَحُ لَهُمُ السَّدَدُ وَلَا يَنْعَكُونَ^{١٢} الْمُتَمْنَعَاتُ الَّذِينَ يَعْطُونَ كُلَّ

^١ Ms., البلقاء; see *inf.*, ٢٠, 9; Yāq., III, 719; cf. *inf.*, ١٩, 15; Ibn Mājah reads ايلة for عمان البلقاء—see ذكر الحوض.

^٢ Ms., يظما.

^٣ Ms., رؤسا.

^٤ Ms., ادهن; cf. Ibn Mājah, *ib.*

^٥ Ms., ايشعث (*etc.*).

^٦ Ibn Mājah, *ib.*, على.

^٧ Ms., يتسخ.

^٨ Ms., سوان; شداد is given in the margin.

^٩ The text is faulty; if الشعثة be taken as المسبب the 'ism following must be مرفوع; similarly with ثيابا (Wr., Ar. Gr., II, 283C); الشعثة is probably an error for الشعث (*pl.*).

^{١٠} Ms., ينعكسون.

الذي^١ عليهم ولا يعطون كل الذي^١ لهم فقال عمر بن عبد العزيز (٢٠) المتمنعات فقد نكحت بنت عبد الملك و اما السدد فقد فتحت لى والله لا شعثن راسي ولا دنسن ثوبي - حدثني احمد بن الفرج ثنا عثمان بن سعيد ثنا عثمان^٢ بن المهاجر^٣ عن العباس بن سالم عن ابي سلام الاسود قال بلغ عمر بن عبد العزيز انه يحدث عن ثوبان في الحوض قال فبعث اليه فحمل^٤ على البريد قال فقال عمر كالمتوجع ما اردنا المشقة عليك يا ابا سلام ولكنه بلغني عنك حديث^٤ تحدث به عن ثوبان عن نبي الله صلى الله عليه وسلم في الحوض فاحببت ان تشافعني فيه مشافعة قال ابو سلام سمعت ثوبان يقول قال رسول الله صلى الله عليه وسلم حوضي ما بين عدن الى عمان البلقاء مأوى^٥ اشد يداضا من اللبن واحلى من العسل اكويبه عدد نجوم السماء^{١٠} من شرب منه شربة لم يظم^٦ بعدها ابدا و اول * الناس وردوا عليه فقراء المهاجرين الشعث روسا الدنس ثيابا الذين لا ينكحون المتمنعات ولا تقف لهم السدد قال عمر لكني قد نكحت المتمنعات فاطمة بنت عبد الملك و فحدث لى السدد فلا جرم لا اعسل راسي حتى يشعث ولا القى ثوبي حتى يتسرخ^٦ *

*Fol. 8a.

عمر بن عبد العزيز عن سعيد بن خالد^{١٥}

حدثني يوسف بن عبد الملك [بن]^٧ مروان الدقيقى من كتابه ثنا ابو همام الصلت بن محمد البخاري قال سمعت عبد الله بن عبد العزيز الليثى المدني قال سمعت ابن شهاب يقول ارسل الى عمر بن عبد العزيز و هو الخليفة^٨ فقال جاءني^٩ سعيد بن خالد بن عمرو بن عثمان^{١٠} فقال يا امير

الذي^١ may be an error for الذين.

^٢ For عثمان read محمد, as at ١٨, 16,—and in the *ismād* of Ibn Mājah.

^٣ المهاجر is probably correct; see ١٨, 16, n. 4.

^٤ Ms., حديثا.

^٥ Ms., يظما.

^٦ Ms., يتسرخ.

^٧ Ms. omits بن.

^٨ Ms., خليفة.

^٩ Ms., جاني.

^{١٠} Ms., reads عمرو for عثمان; cf. *Tah.*, IV, 29.

(٢١) المومنين اقطعني الشديدا^١ فانه بلغني عن رسول الله صلى الله عليه وسلم قال ما من رجل غرس غرساً الا اعطاه الله من الاجر عدد الغرس و الثمر و اجد بنفسني افسمعت هذا فقلت نعم اشهد على عطاء بن يبريد انه سمعه من ابي ايوب يحدثه عن رسول الله صلى الله عليه وسلم *

٥ عمر بن عبد العزيز عن ابي سلمة ابن^٢ لعبد الرحمان بن عوف

حدثني مكى بن مدرك قال قال معمر بن سليمان انا^٣ زيد بن حبان عن محمد بن قيس قاص^٤ * عمر بن عبد العزيز قال قال ابي عمر بن عبد العزيز اخرج الى هؤلاء^٥ القوم الذين يؤثمون الناس في شهر رمضان فمرهم يسجدوا في الجمعة باذا السماء انشقت و اقرأ باسم ربك الذي خلق فان ابنا^٦ لعبد الرحمان بن عوف حدثني عن ابيه عن النبي صلى الله عليه وسلم انه سجد فيها^٧ - حدثنا محمد بن وزير^٨ الدمشقي ثنا الوليد بن مسلم حدثني محمد بن مهاجر انه سمع الزهري يقول لعمر بن عبد العزيز يعني سجدتي السهو هما قبل السلام قال فابي عمر و قال اخبرنا ذلك بابن شهاب^٩ ابو سلمة بن عبد الرحمان يعني سجدتي السهو - حدثنا محمد بن اشكاب ثنا ابو علي الحنفى ثنا ابن ابي ذئب^{١٠} ثنا عبد العزيز بن عباس^{١١} عن محمد ابن قيس عن عمر بن عبد العزيز عن ابي سلمة بن عبد الرحمان عن ابي هريرة

^١ Probably السويداء is the correct reading ; three places with this name are mentioned in Yāq., III, 197 ; Tab., II, 1254.

^٢ Ms., بن. ^٣ Ms., has انا and زيد between.

^٤ Ms., قاضي. ^٥ Ms., هؤلاء. ^٦ Ms., ابن.

^٧ فيها should be فيها.

^٨ Thus at ٢٣, 18 ; ٢٤, 2 ; cf. الزهير, Tah., IX, 821.

^٩ The text is faulty, and should read : شهاب ابن شهاب ...
أخبرنا ذلك ابو سلمة ...

^{١٠} Ms., بن ابي ذيب.

^{١١} Cf. ٢٢, 3. العباس.

ان رسول الله صلى الله عليه وسلم سجد في اذا السماء انشقت - **حدَّثنا** (٢٢)
 احمد بن عمر ثنا ابو نوح عبد الرحمان بن غزوان ثنا ابن ابي ذئب عن عبد
 العزيز بن العباس^١ عن عمر بن عبد العزيز عن ابي سلمة عن ابي هريرة ان
 رسول الله صلى الله عليه وسلم سجد في اذا السماء انشقت *

عمر [بن عبد العزيز] عن عامر بن سعد^٥

حدَّثني محمد بن زبير^٢ * الا بطعي ثنا عبد العزيز بن ابي حازم عن
 (.....)^٣ عن محمد بن المنكدر عن عامر بن سعد بن ابي وقاص عن اسامة
 ابن زيد عن رسول الله صلى الله عليه وسلم قال ذكر الطاعون عنده فقال رجز أوقع
 عذب به أمة من الأمم و بقي منه بقايا فادا سمعتم به بارض فلا تدخلوا عليه و اذا
 اوقع بارض و انتم بها فلا تفروا منه قال محمد بن المنكدر فعُدَّت بهذا الحديث 10
 عمر بن عبد العزيز فقال هكذا حدَّثني عامر بن سعد - **حدَّثني** ابراهيم بن
 عبد الله بن ابي شيبه ثنا عمر بن حفص بن غياث ثنا ابي عن الشيباني عن رباح^٤
 ابن عبيدة عن عامر بن سعد بن مالك قال شهدت اسامة بن^٥ زيد عند سعد
 ابن مالك يقول قال رسول الله صلى الله عليه وسلم ان الطاعون رجز انزل علي
 من كان قبلكم او علي بني اسرائيل^٦ فاذا وجد بارض فلا تدخلوها و اذا وجد 15
 بارض فلا تخرجوا منها - **حدَّثني** ابراهيم بن عبد الله ثنا عمر بن
 حفص ثنا ابي عن الشيباني حدَّثني حبيب بن ابي ثابت عن ابراهيم بن سعد
 انه قال ذلك فعُدَّت بمثل ذلك - **حدَّثني** ابراهيم ثنا عمر بن حفص ثنا

^١ عباس-16, ٢١ Cf.

^٢ Ms. unpointed, as at ١٣, 9; ميمون is here suggested in the margin, but wrongly.

^٣ In the lacuna probably the name of الهاد بن يزيد should be read; he related from Md. b. al-Munkadir; an alternative is to read ابية (i.e., Abū Ḥāzim), who also related from Ibnu'l-Munkadir, but the lacuna is large enough to admit a full name.

^٤ Ms., رباح.

^٥ Ms., ابن.

^٦ Ms., اسرائيل.

^٧ Ms., محمد; cf. ٢٢, 12, 18; Tah., II, 725.

(٢٣) أبي عن الشيباني عن أبي بكر بن حفص حدثني عمر بن عبد العزيز عن عامر ابن سعد مثل ذلك كلهم يذكرونه عن اسامة - حدثنا محمد بن المثنى^١ أبو موسى ثنا عثمان بن عمر ثنا فليح بن سليمان عن عبد الله بن عبد الرحمن ان عامر بن سعد حدث عمر بن عبد العزيز وهو امير المدينة ان سعد بن مالك اخبر ان رسول الله صلى الله عليه وسلم قال من اكل سبع تمرات عجوة ما بين لاثني المدينة ويبدأ بهن^٢ لم يضره يومه ذلك سم حفي الليل قال فقال له عمر ابن عبد العزيز انظر ما تحدث به عن رسول الله صلى الله عليه وسلم يا عامر فقال عامر اشهد ما كذبت علي سعد ولا كذب سعد علي رسول الله صلى الله عليه وسلم فقال عمر واشهد ان رسول الله صلى الله عليه وسلم لم يكذب *

١٠ عمر بن عبد العزيز عن يحيى بن القاسم

حدثنا عبد الرحمن بن ابراهيم الدمشقي ابو سعيد دحيم ثنا محمد ابن شعيب بن شابور عن عمر بن يزيد البصري عن عمرو بن مساجر عن عمر ابن عبد العزيز عن يحيى بن القاسم عن ابيه عن جده عبد الله بن عمرو^٢ *Fol. 9a. قال قال رسول الله صلى الله عليه وسلم ما هلك امتة قط الا بالشرك *

١٥ وما كان بدو شركها الا التكذيب بالقدر *

عمر بن عبد العزيز عن قيس بن الحارث عن الصنابحي^٣

حدثني محمد بن وزير الدمشقي ثنا الوليد بن مسلم ثنا ابن جابر ان يعقوب بن يعقوب الغساني^٤ حدثه عن محمود بن لبيد الأنصاري حدثه عن الصنابحي انه صلى خلف ابي بكر الصديق فقرأ في الركعتين الاوليين^٥ بام القرآن وسورة من قصار المفصل يحبر القراءة فلما قام في الثانية ابتدا القراءة

^١ Ms., المهي.

^٢ Also written عمر (see in Notes).

^٣ Ms., الصابحي.

^٤ Ms., الغساني.

^٥ Ms., الاولتين ; cf. Wr., Ar. Gr., I, 260, n.

لدنوت منه حتي كادت ثيابي تمس ثيابه فسمعتنه قرأ بام القرآن وقرأ ربنا (٢٤)
 لا تزغ^١ قلوبنا بعد اذ هديتنا^٢ الآية - حدثنا محمد بن وزيرنا الوليد عن
 ابي عمرو عن مالك بن انس عن ابي عبيد حاجب سليمان^٣ ان قيس بن
 الكارث حدث عمر بن عبد العزيز انه سمع الصنابحي^٤ يحدث بمثل ذلك
 قال ابو عبيد فاخبرني عبادة بن نسي^٥ انه سمع عمر بن عبد العزيز يقول^٦
 لقيس بن الكارث كيف حدثتني عن الصنابحي فحدثه بهذا الحديث فقال
 عمر ما تركتها منذ سمعتها منك و ان كنت قبل ذلك *

عمر بن عبد العزيز عن رجل

حدثنا محمد بن مرزوق بن البهلول الباهلي و محمد يعنى ابن^٧
 معمر قال ثنا محمد بن بكر ثنا عبد الحميد بن جعفر الانصاري اخبرني الاسود^٨
 ابن العلاء^٩ حدثني مولي سليمان^{١٠} بن عبد الملك عن رجل ارسل اليه عمر بن
 عبد العزيز امير المؤمنين فقال كيف الحديث الذي حدثتني^{١١} عن الصنابحي
 قال اخبرني الصنابحي انه اتي عمرو بن عبسة قال هل من حديث عن رسول
 الله صلى الله عليه وسلم لا زيادة فيه ولا نقصان قال نعم سمعت رسول الله صلى
 الله عليه وسلم يقول من اعتق رقبة اعتق الله تعالى بكل عضو منها عضوا منه^{١٢}
 من النار و من رمي بسهم في سبيل الله بلغ او قصر كان عدل رقبة و من شاب
 شيبة^{١٣} في سبيل الله كان له نورا يوم القيامة قال فكيف الحديث الاخر اخبرني
 الصنابحي انه صلى وراء ابي بكر الظهر او العصر فقرأ في الركعتين الاوليين^{١٤}
 بام القرآن و سورة وقرأ في الركعتين الاخيرتين^{١٥} بام القرآن و ربنا لا تزغ
 قلوبنا بعد اذ هديتنا الى قوله انت الوهاب^{١٦} *

^١ Ms., نزغ.^٢ Qur., III, 6.^٣ Ms., حاجب بن سليمان : cf. ٢٤, 11.^٤ Ms., الصنابحي.^٥ Ms., نسي.^٦ Ms., بن.^٧ Ms., العلاء.^٨ Probably ابو عبيد has been omitted, or سليمان should be read.^٩ Ms., حدثني.^{١٠} Ms., شيبة.^{١١} Ms., الاولتين.^{١٢} The usual expression is ^والأخيرتين, e.g., A. b. H., II, 330, 1. 2.^{١٣} Qur., III, 6.

(٢٥) **عمر بن عبد العزيز عن أبي بكر
محمد بن عمرو بن حزم**

حدثني إبراهيم بن محمد ثنا اسماعيل بن ابي اويس ثنا سليمان بن بلال
Fol. 9b. * عن اسامة بن زيد ان ابا بكر بن ١ محمد بن عمرو بن حزم * اخبره ان عمر بن
٥ عبد العزيز كتب اليه في خلافته اكتب الى بنسخة صدقة ٢ اصحاب رسول الله
صلى الله عليه وسلم وبنسخة ولائها وارفع في انسابهم و اكتب الى الحديث
الذي حدثتني عن عمرة ٣ عن عائشة قال قال اسامة قلت لابي بكر
وكيف حديث عنها فقال ابو بكر حدثتني عمرة بنت عبد الرحمن انها سمعت
عائشة تقول حين رأت ما احدث الناس في صدقاتهم قالت يا سبعا الله
١٠ ما اشبه ما قال الله في كتابه وقالوا ما في بطون هذه الانعام خالصة لذكورنا
ومحرم على ازواجنا وان يكن ميتة فهم فيه شركاء * ٤

عمر بن عبد العزيز عن أبيه

حدثنا احمد بن الوليد البزار ثنا عبد العزيز بن عبد الله الاويسى ٥ ثنا
محمد بن صالح الازرق ابن ٦ ابي قيس عن صالح بن محمد عن عمر بن عبد
١٥ العزيز عن ابيه عن عقبة بن عامر ان رسول الله صلى الله عليه وسلم قال رحم
الله تعالى حارس ٧ الحرس قالها ثلاث مرات الذين يكونون بين الروم وبين
عسكر المسلمين ينظرون لهم ويحذرونهم *

عمر بن عبد العزيز عن عبد الله بن موهب

حدثنا هشام بن عمار الدمشقي ثنا يحيى بن حمزة ثنا عبد العزيز
٢٠ ابن عمر بن عبد العزيز قال سمعت عبد الله بن موهب يحدث عمر بن عبد

١ is omitted from the heading, as at Sup., ١١, ١٠, but appears at

٢٥, ٤.

٢ Ms., صدقة.

٣ Ms., عمر.

٤ Qur., VI, 140.

٥ Ms., الارلسي.

٦ Ms., بن.

٧ Ms., حارش.

العزیز عن قبيصة بن ذؤيب¹ عن تميم الداري قال قال رسول الله صلى الله (٢٦)
عليه وسلم ما السنة في الرجل الكافر يسلم على يدي المسلم فقال رسول الله
صلى الله عليه وسلم هو اولى الناس بمحياة ومماته قال عبد العزيز بن عمر
وشهدت عمر بن عبد العزيز قضي بذلك في رجل اسلم علي يدي رجل فمات
وترك مالا وابنته له فاعطي عمر ابنته النصف والذي اسلم علي يديه النصف * 5

عمر بن عبد العزيز عن عبيد الله ابن عبد الله

حدثني محمد بن حاتم البزاز ثنا جعفر بن عون عن ابي عميس² قال
سمعت ابا بكر بن عبد الله بن ابي النجم القرشي عن عبيد الله بن عبد الله بن
عتبة ان الوليد بن عبد ملك كتب الى عمر بن عبد العزيز يامره ان يسأل فقهاء³
من قبله من اهل المدينة عن صلاة الخوف فارسل عمر بن عبد العزيز الى
فقيهاهم يسألهم⁴ قال فجاء عبيد الله بن عتبة وقد اختلف القوم عليه فقال
دع ما يقول هؤلاء⁵ حدثني عبد الله بن عباس ان رسول الله صلى الله عليه
وسلم صلى⁶ الناس صلاة الخوف فصلى طائفة منهم فصلوا⁷ معه الركعة
الاخري ثم جلس * رسول الله صلى الله عليه وسلم وتشهد وسلم فكانت لرسول
الله صلى الله عليه وسلم ركعتان والناس ركعة ركعة *

*Fol. 10a.

عمر بن عبد العزيز عن عبد الله بن قارظ

حدثنا احمد بن عمرو بن السرح ويونس بن عبد الاعلى و ابو عبيد الله
قالوا ثنا ابن⁸ وهب حدثني عبد الجبار بن عمر ان ابن³ شهاب حدثه ان عمر

¹ Ms., ذؤيب.

² Tah., VII. 207, etc. والعميس

³ Ms., يسأل فقهاء.

⁴ Ms., فقهاء يسألهم.

⁵ Ms., هؤلاء.

⁶ Ms., صلا.

⁷ The text is faulty: several words must have been omitted by the copyist.

⁸ Ms., بن.

(٢٧) ابن عبد العزيز حدثه عن ابراهيم بن عبد الله بن قارظ قال سمعت معاوية بن ابي سفيان وهو على المنبر بالمدينة يقول اين فقهاؤكم يا اهل المدينة اني سمعت رسول الله صلى الله عليه وسلم عند منبره ينهى عن مثل هذه القصة ثم وضعها على راسه فلم ارها على عروس ولا غيره اجمل منها على معاوية ويقول

5 لعن الله الواشمة والمتنمصة والنامصة والواشرة والموسومة^١ - **حدثني** الربيع ثنا شعيب بن يحيى ثنا عبد الجبار مثله - **حدثنا** عبد الرحمان بن عبد الله بن عبد الحكم^٢ ثنا ابي ثنا بكر بن مضر عن جعفر بن ربيعة عن بكر بن سوادة عن محمد بن مسلم بن شهاب عن عمر بن عبد العزيز عن عبد الله بن ابراهيم بن قارظ قال رايت ابا هريرة يتوضأ على ظهر المسجد وقد اكل 10 اثوار اقط فتوضأ فقال اتوضأ فقال اني سمعت رسول الله صلى الله عليه وسلم يقول توضؤوا مما غيرت النار *

عمر بن عبد العزيز عن عبادة بن عبد الله

حدثني عبد الله بن احمد الدورقي ثنا يونس بن موسى ثنا الحسن ابن حماد ابو محمد ثنا عبد الله بن محمد العدوي قال سمعت عمر بن عبد العزيز يقول على المنبر حدثني عبادة بن عبد الله عن طلحة بن عبيد الله قال سمعت رسول الله صلى الله عليه وسلم يقول على منبره الا ايها الناس لا يقبل الله صلاة امام حكم بغير ما انزل الله تعالى ولا يقبل الله صلاة بغير ظهور ولا صدقة من غلول - **حدثني** عبد الله بن احمد الدورقي ثنا يونس بن موسى ثنا الحسن بن حماد ابو محمد الكيريني ثنا عبد الله بن محمد العدوي 20 قال سمعت عمر بن عبد العزيز يقول على المنبر ثنا عبادة بن عبد الله عن طلحة بن عبيد الله قال سمعت رسول الله صلى الله عليه وسلم يقول على المنبر الا يا ايها الناس توبوا الى ربكم قبل ان تموتوا وبادروا بالاعمال الصالحة قبل ان تشغلوا وصلوا الذي بينكم وبين ربكم عز وجل بكثرة ذكركم *Fol. 10b. له وكثرة الصدقة في السر والعلانية ترهّدوا وتوجّروا * و تنصروا و اعلموا

¹ Cf. ٨, 12.² Ms., الملك ; cf. sup., ٨, 1.

ان الله تعالى فرض عليكم الجمعة في مقامي هذا في عامي هذا في (٢٨) شهرى هذا الى يوم القيامة حياتي وبعد موتى فمن تركها وله امام فلا جمع الله تعالى له شمله الا فلا بارك الله له في امره الا ولا اخره له الا ولا صوم له الا ولا صلاة له الا ولا نوم^١ امرأة رجلا ولا يوم^٢ الاعرابي مهاجرا الا ولا يوم فاجر مومنا الا ان يقهره سلطان يخاف سيفه وسوطه *

5

عمر بن عبد العزيز عن الزهوي^٣

حدثني ابراهيم بن عبد العزيز ثنا على بن زهير ثنا على بن عياش عن عباد بن كثير عن عمر بن عبد العزيز عن الزهري عن انس بن مالك قال قال رسول الله صلى الله عليه وسلم ان لكل دين خلق وان خلق الاسلام

10

الحياة *

عمر بن عبد العزيز عن الربيع بن سبرة^٤

حدثني محمد بن يزيد ابن اخي شاذ ثنا وهب بن جرير قال سمعت ابي يحدث عن محمد بن اسحاق عن الزهري عن عمر بن عبد العزيز عن الربيع بن سبرة + الجهني عن ابيه ان رسول الله صلى الله عليه وسلم نهى عن المتعة يوم الفتح - حدثني عمر بن يعقوب بن يحيى الرقى عن الحسن 15 ابن محمد بن اعين ثنا معقل بن عبيد الله عن ابراهيم بن ابي عبله عن عمر بن عبد العزيز حدثني الربيع بن سبرة + الجهني عن ابيه ان رسول الله صلى الله عليه وسلم نهى عن المتعة وقال الا انها حرام من يومكم هذا الى يوم القيامة ومن كان اعطى شيئا فلا ياخذ - حدثني عيسى بن يونس الرملی

¹ Ms., تؤام.

² Ms., يامر.

³ The order of the following four traditions has been changed as it is confused in the original, in which their sequence is as follows: (a) Tradition of 'Umar b. Ya qūb (ll. 15-19)—in the original it comes under the heading of 'Uḅādah b. 'Abd'l lāh; (b) Tradition under heading of az-Zuhri (ll. 6-9) and (c) Tradition of 'Isā b. Yūnus ar-Ramī (٢٨, 19-٢٩, 5); (d) Tradition under heading of ar-Rabī' b. Sabrah (ll. 11-15). The three traditions of ar-Rabī' deal with *mut'ah*.

⁴ Ms., مسيرة.

(٢٩) ثَنَا أَيُّوبُ بْنُ سُوَيْدٍ حَدَّثَنِي يُونُسُ بْنُ يَزِيدٍ حَدَّثَنِي ابْنُ ١ شَهَابٍ مُحَمَّدُ بْنُ
 مُسْلِمٍ أَخْبَرَنِي الرَّبِيعُ بْنُ سَبْرَةَ الْجَهَنِّيُّ أَنَّ أَبَا قَالَ كُنْتُ اسْتَمْتَعْتُ فِي عَهْدِ رَسُولِ
 اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ مِنْ امْرَأَةٍ مِنْ بَنِي عَامِرٍ بَبْرَدِينَ أَحْمَرِينَ وَنَهَانَا
 رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ عَنْ الْمَتْعَةِ قَالَ سَمِعْتُ الرَّبِيعَ ٢ بْنُ سَبْرَةَ
 ٥ يَحْدُثُ ذَلِكَ عَمْرُ بْنُ عَبْدِ الْعَزِيزِ وَأَنَا جَالِسٌ *

عمر بن عبد العزيز عن سلمى مولاة مروان

أَخْبَرَنِي أَحْمَدُ بْنُ مُحَمَّدٍ بْنُ عَبْدِ اللَّهِ الْكُرُوحِيُّ ٣ وَ كُتِبَ بِهِ إِلَى
 حَدَّثَنِي مُحَمَّدُ بْنُ إسماعيلٍ حَدَّثَنِي عَبْدُ اللَّهِ بْنُ سَلَمَةَ بْنُ إِسْلَمٍ عَنْ سُلَيْمَانَ بْنِ
 عَاصِمٍ عَنْ عَمْرِ بْنِ عَبْدِ الْعَزِيزِ قَالَ سَمِعْتُ سَلْمَى مَوْلَاةَ مَرْوَانَ بْنِ ٤ الْحَكَمِ يَقُولُ
 ١٠ حَدَّثَنِي مَرْوَانَ بْنُ الْحَكَمِ يَقُولُ سَمِعْتُ مَعَاوِيَةَ بْنَ أَبِي سَفْيَانَ يَقُولُ سَمِعْتُ أُمِّي
 هُنْدَ بِنْتَ عُبَيْدَةَ يَقُولُ وَهِيَ تَذْكُرُ ٥ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ وَهِيَ
 *Fol. 11a. تَقُولُ فَعَلْتُ يَوْمَ أُحُدٍ مَا فَعَلْتُ مِنَ الْمُثَلَّةِ بِعَمَّةٍ وَأَصْحَابِهِ كُلِّهَا سَارَتْ قَرِيشَ
 سِيرًا ٦ فَأَنَا مَعَهَا بِنَفْسِي حَتَّى رَأَيْتُ فِي النَّوْمِ ثَلَاثَ ٧ لَيَالٍ رَأَيْتُ كَانِي فِي ظِلْمَةٍ لَا
 أَبْصُرُ سَهْلًا وَلَا جَبَلًا وَارِي مِنْ تِلْكَ الظِّلْمَةِ انْفَرَجَتْ عَنِّي بِضُوءٍ ٨ مَكَانَهُ فَإِذَا رَسُولُ
 ١٥ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ يَدْعُونِي ثُمَّ رَأَيْتُ فِي اللَّيْلَةِ الثَّانِيَةِ كَانِي عَلَى طَرِيقٍ
 وَ إِذَا يَهْبِلُ عَنِ يَمِينِي يَدْعُونِي وَ إِذَا بِسَافٍ يَدْعُونِي عَنْ يَسَارِي وَ إِذَا رَسُولُ اللَّهِ
 صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ بَيْنَ يَدَيَّ قَالَ تَعَالَى هَلُمِّي إِلَى الطَّرِيقِ ثُمَّ رَأَيْتُ اللَّيْلَةَ
 الثَّلَاثَةَ كَانِي وَاقِفَةً عَلَى شَفِيرِ جَهَنَّمَ يَرِيدُونَ أَنْ يَدْفَعُونِي فِيهَا وَ إِذَا يَهْبِلُ يَقُولُ
 ادْخُلِي فِيهَا فَالْتَفَتْتُ فَإِذَا رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ مِنْ وَرَائِي ٩ أَخَذَ
 ٢٠ بِيْثَابِي فَتَبَاعَدْتُ عَنْ شَفِيرِ جَهَنَّمَ وَفَرَعْتُ فَقُلْتُ هَذَا شَيْءٌ قَدْ بَيَّنَّ لِي فَعُدُّوْتُ

١ Ms., بن.

٢ Ms., ربيع.

٣ Ms., الكورحى.

٤ Ms., ابن.

٥ Ms., تذكّر.

٦ The word in the text may be read as مسيرا.

٧ Ms., ثلث.

٨ Ms., بضوء.

٩ Ms., وراعى.

الى صنم في بيتنا فجعلت اضره و اقول طال ما كنت منك في غرور و اتيت (٣٠)
رسول الله صلى الله عليه و سلم و اسلمت و بايعته *

عمر بن عبد العزيز عن محمد ابن ثابت بن شرحبيل

حدثني الحسين بن شاذان السمرقندي ثنا محمد بن يوسف ثنا ابو قرة 5
موسى بن طارق قال ذكر زمعة عن عبد الله بن ابي بكر بن حزم قال رفع 1 الى
عمر بن عبد العزيز حديث حدث به محمد بن ثابت بن شرحبيل و كتب الى عمر
ابن عبد العزيز الى ابي ان سل محمد بن ثابت عن حديثه فانه رضي 2 فساله وانا
معه فاخبرنا محمد بن ثابت عن عبد الله بن يزيد الخطمي عن ابي ايوب ان رسول
الله صلى الله عليه وسلم قال من كان يومئذ بالله و اليوم الآخر فليكنم ضيفه و من 10
كان يومئذ بالله و اليوم الآخر فليكنم جاره و من كان يومئذ بالله و اليوم الآخر فلا
يدخل الحمام الا بمؤازر 3 و من كان يومئذ بالله و اليوم الآخر من نسائكم فلا
تدخل الحمام قال عبد الله بن ابي بكر فكتب ابي الى عمر بن عبد العزيز بذلك
فمنع عمر بن عبد العزيز النساء من الحمام *

عمر بن عبد العزيز عن عراك بن مالك 15

حدثنا جعفر بن ابي عثمان الطيالسي ثنا يحيى بن معين ثنا عبد
الوهاب الثقفي عن خالد الحذاء عن رجل عن عمر بن عبد العزيز انه قال ما
استقبلت القبلة بفرجى منذ كذا وكذا فحدث عراك بن مالك عن عائشة ان
النبي صلى الله عليه وسلم امر بخلائه 4 ان يستقبل به القبلة ان الناس يكرهون
ذلك *

20

هذا اخر مسند عمر بن عبد العزيز رضي الله عنه

كتبه لنفسه محمد بن ابي القاسم بن محمد بن اسعد بن الحكيم الكوفي
و الحمد لله وحده و صلى الله على سيدنا محمد و على آله وصحبه وسلم .

1 Ms., دفع.

2 Ms., رضا.

3 Ms., مبرز.

4 Ms., بخلايه.

* سمع جميع ما في هذا الجزء من مسند عمر بن عبد العزيز على الشيخ
الجليل الثقة ابي حفص عمر بن محمد بن معمر بن طبرزد بروايته لجميعة عن
ابي المواهب الزواق وروايته للجزء الثاني من محمد بن عبد الباقي الانصاري
كلاهما عن ابي محمد الجوهري بسنده بقراءة الفقيه الامام العالم الاوحد شهاب
5 الدين محمد بن خلف بن راجح المقدسي صاحب الجزء الفقيه ابو عبد الله
محمد بن ابي القاسم بن محمد بن اسعد بن العليم الكنفي والحافظ الامام
ابو الفتح محمد بن عبد الغني بن عبد الواحد المقدسي ايد الله واولاده
ابو العباس احمد و ابراهيم في رابع سنة و احضر ابو الربيع سليمان بن ابراهيم
ابن رحمة السعدي وعادى بن ابراهيم بن مبادر العريضي وعمر بن مسعود بن
10 علي الخباز وابنه محمد احضر رله ستة وتسعة اشهر و جماعة كثيرون اختصرت
اسماؤهم هم المذكورون على نسخة الحافظ عز الدين ابي الفتح محمد منهم
مثبته يوسف بن عبد المنعم بن نعمة بن سلطان المقدسي وصح في يوم الاثنين
سادس عشرين رجب سنة ثلاث وستمائة ببجل قاسيون ظاهر دمشق والحمد
للم وحده وصلى الله على سيدنا محمد وعلى اله وصحبه وسلم تسليما كثيرا *

15 [هم جميع هذين الجزئين على الشيخ ابي حفص ابن طبرزد بالقراءة
[عبد الرحمان بن الشيخ ابي عمر محمد و احمد وعلى بن احمد بن عبد الواحد
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25 ابن عبد الواحد المقدسي وذكر انه نقله من خط ابيه انتهى *

سمع جميع هذين الجزئين على الشيخ الجليل بدر الدين ابي محمد
عبد الوهاب بن محمد بن ابراهيم المقدسي بسماعه فيه تراء منقولا بقراءة صاحبه

الفقيه الامام المفيد ناصر الدين ابي الحسن على بن المظفر بن ابراهيم (٣٢)
الكندى عبد الحافظ ابن عبد المنعم بن عادى المقدسى وهذا خطه وصح
وثبت في يوم الخميس سلخ ربيع الاول سنة سبع وخمسين وستمائة بالجبل
و اجاز لنا المسمع جميع ما يجوز له روايته *

قرات هاذين الجزئين بكما لهما على سيدنا وشيخنا الامام العالم العامل^٥
شيخ المشائخ بقية السلف رحلة الوقت تاج الدين ابي المنصور مظفر [بن] عبد
لكريم بن نجم الحنبلي^١ فسم الله في مدته بحق سماعه لها من ابن طبرزد
بسندة فسمعه الشيخ الامام العالم برهان الدين ابواسحاق ابراهيم بن فلاح
الجذامي الاسكندري والامر سلف^٢ الدين قشتمر بن عبد الله العربزى
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ما يجوز عنه ورايته بشرطه وكتبه احمد بن فرج بن احمد بن محمد
الللخمي الاندلسي الاسبلي في يوم الاحد الثالث والعشرين لجمادى الآخرة
من سنة ثلاث وستين وستمائة والسماع بمدرسة الشيخ المسمع بداخل
دمشق المحروسة والحمد لله وحده وصلى الله على سيدنا محمد وعلى
آله وصحبه وسلم *

^١ Cf. *sup.*, ٣١, 23.

^٢ Prob.: و الامير سيف.

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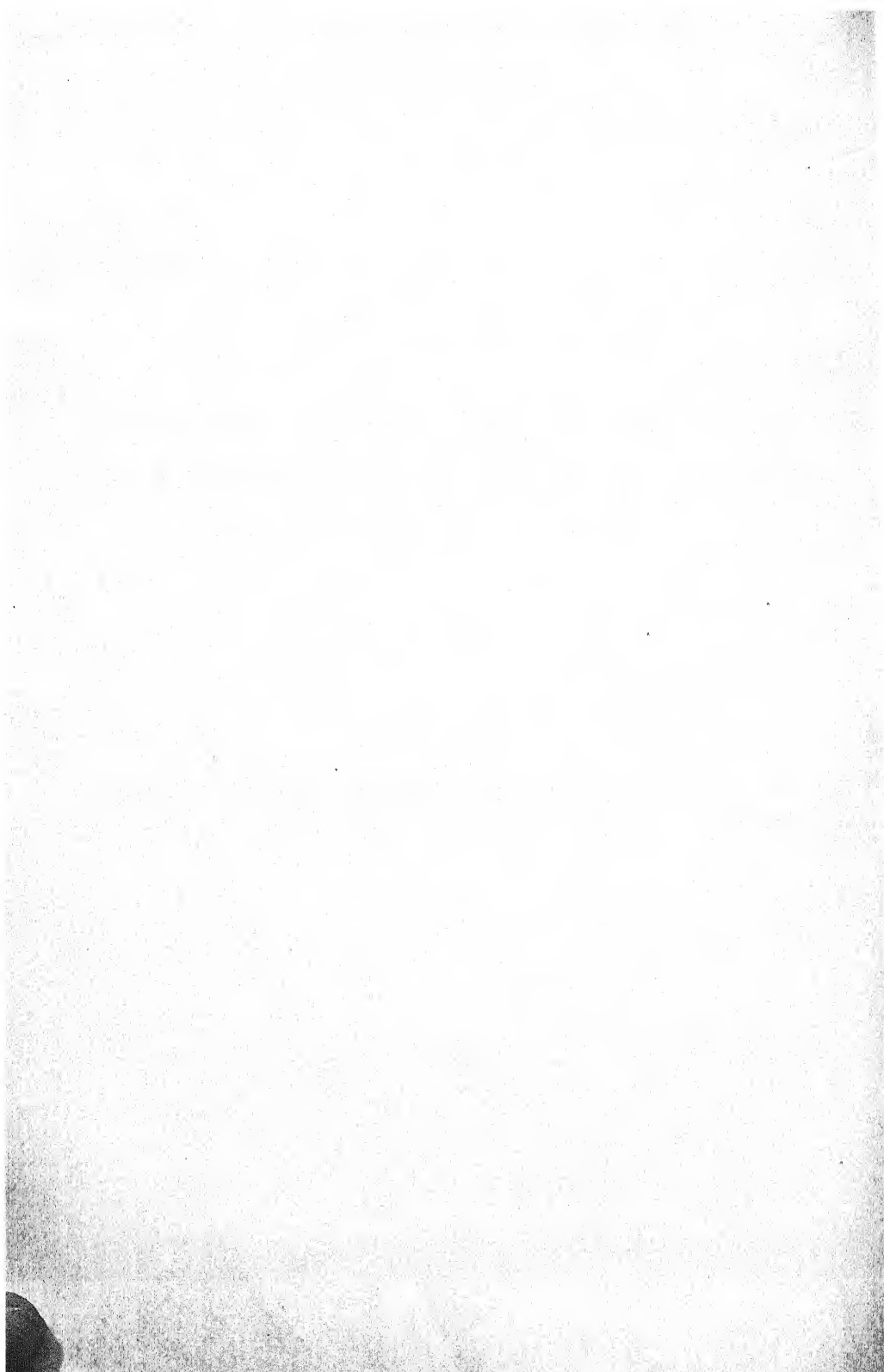
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| ٢٦, 10 | الوليد بن عبد الملك | ٢, 14, 16; ٣, 1 | |
| ٤, 11; ١٥, 16; | الوليد بن مسلم | يوسف بن عبد الملك بن مروان | |
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| ٢٨, 12 | وهب بن جرير | ٢, 18 | يونس بن عبد الاعلى |
| يعقوب (هو يعقوب بن سعيد) | | ٨, 6; ٢٦, 18 | يونس بن موسى |
| ١٤, 1 | يعقوب بن ابراهيم بن ابي قتيبة | ٢٧, 13, 18 | يونس بن يزيد |
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| ٢٩, 12 | احد | ٢١, 1 | السويداء |
| ٨, 18, 19 | حراء وحري | ١٩, 3, 15; ٢٠, 9 | عدن |

| | | |
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| ١٩, 3, 15; ٢٠, 9 | عمان - البلقاء | ٦, ١٣ |
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| ٢٧, 2 | | |

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NOTES ON THE TEXT.

Part I.

r, 3—10: 'Uqbah b. 'Āmir b. 'Abs (or 'Ābis, A. b. H., IV, 144, ^{11, 13}) al-Juhani, a Companion (I. Sa'd, IV, 2, 65); Governor of Egypt for Mu'āwiyah b. Sufyān, from 44—47 A.H. (al-Kindī, *al-Wulāt*, 38, cf. 36); died in 58 (I. Ath., III, 430), in Egypt (Naw., *Tah.*, 426)—see also *Tah.*, VII, 439.

Ishāq b. Ibrāhīm b. Makhlad related from ad-Darāwardī; d. c. 238 (*Tah.*, I, 408).

'Abdu'l-'Azīz b. Md. ad-Darāwardī,—d. c. 186; for his *nisbah* see Sam., 224 (b); (*Tah.*, VI, 677).

Šāliḥ b. Md. b. Zā'idah—d. after 140; was quoted by ad-Darāwardī (*Tah.*, IV, 683).

'Umar b. 'Abdi'l-'Azīz did not relate directly from 'Uqbah b. 'Āmir (*Tah.*, VII, 790, says: *يقال مرسل*). The ḥadīth here, and at r, 13, is *منقطع*, as 'Umar was born c. 61, while 'Uqbah died in 58. It occurs again, *infra*, r, 15, with the same isnād, but with 'Abdu'l-'Azīz, father of 'Umar, as the necessary intermediary link.

For the merit of *حرس* *أيلة*, cf. A. b. H., I, 61¹⁵, 65².

Isnād and *Matn* are given by Ibn Mājah (كتاب الجهاد).

10—13: ar-Rabi' b. Sulaimān ash-Shāfi'—174—270; related from Asad b. Mūsā (*Tah.*, III, 473).

Asad b. Mūsā—called Asadu's-Sunnah; 132—212 (*Tah.*, I, 494).

Isnād and *Matn* as at r, 8—9.

r, 14—18: Yūsuf b. 'Abdi'l-lāh b. Sallām—it is disputed whether he was a Companion (junior) or a Tābi'i; al-Bukhārī takes the former view, al-'Ijli the latter; he related from his father (r, 2), and was quoted by 'Umar II, in whose reign he died (*Tah.*, XI, 811). There is a tradition on his own authority that the Prophet named him "Yūsuf" (A. b. H., VI, 61¹⁶⁻²⁰).

Md. b. Ishāq b. Yasār—related from the following; d. c. 150 (*Tah.*, IX, 51; *Tab. Hut.*, V, 12).

Ya'qūb b. 'Utbah b. al-Mughīrah—related from 'Umar II; d. 128 (*Tah.*, XI, 755). The ḥadīth is *مرسل*, the name of his father, given at r, 2, being omitted here.

r, 18-r, 3: Sufyān b. Wakī'—related from the following; d. 247 (*Tah.*, IV, 210.).

Yūnus b. Bukair—related from Md. b. Ishāq b. Yasār; d. 199 (*Tah.*, XI, 844).

Isnād as at r, 15-16.

‘Abdu’l-lāh b. Sallām has stated that this name was given him by the Prophet (A. b. H., V, 451⁹).

r, 4-8: Tamīm b. Aus ad-Dāri—accepted Islām in 9; d. 40 A.H. (*Tah.*, I, 951); the isnād therefore is منقطع. At r, 1, Qabiṣah b. Dhu’aib is the necessary *wāsiṭah*. Ahmad b. al-Faraj—related from the following; d. 271 (*Tah.*, I, 118).

Baqiyah b. al-Walīd al-Ḥimṣī—115-c. 197; the preceding was the last of his circle; his reputation as a traditionist is doubtful; al-‘Ijlī’s estimate is representative of more moderate opinions regarding his worthiness (*Tah.*, I, 878): ثقة فيما يروى عن المعروفين وما يروى عن المجتولين فليس بشي. The next two authorities are of the latter order.

Yazīd b. Khālīd al-Jazarī—I. Ḥajar in the *Lisānu’l-Mizān* (VI, 1005, Ed., Hyder.) states that he was a Shaykh of Baqiyah b. al-Walīd, but nothing further is known of him.

Yazīd b. Md.—related from ‘Umar II. but nothing is known of him; ad-Dāraquṭnī declares him to be *maḥḥul* (*Lis. Miz.*, VI, 1047).

According to this tradition five things are forbidden:—

(a) اتخاذ اللبس—The implication is that attention would be devoted to such locks as ought to be given to more important matters; the Prophet’s attitude may be gathered from the tradition: قال لنا رسول الله صلعم نعم الرجل خُرَيْمٌ: قال لولا طول جُمَّته واسبال ازاره فبلغ ذلك خُرَيْمًا فعجل فاحذ شفرة ففقطع بها جُمَّته الى اذنيه آخ (باب ماجاء في اسبال الازار Abu Dā’ūd). For the length of the Prophet’s hair—see A. b. H., III, 203¹⁵; 245⁴.

(b) لبس النعال—the prohibition is not absolute, but is directed against extravagance in foot-wear, as, e.g., in the tradition: ... البسوا ما لم يخالط اسراف, F. III, وكتاب اللباس (*Mishk.*). For the Prophet’s use of Sandals—see A. b. H., II, 172⁹; 178⁸; 179¹⁰; 206²⁷, 215²⁹; III, 100⁸¹; 203⁷; 245¹⁸.

(c) جلوس في المساجد.—This too is not absolute, but is directed against loitering for any mundane purpose; cf. *inf.* 18, 5; A. b. H., IV, 38²⁴; *Mishk.* F. I. باب الجلوس. والنوم والمشى - ايضا باب المساجد ومواضع الصلوة (F. III).

(4) ان يغلو بالصف—intervals should not be allowed in a

row of worshippers, according to the injunction : (*Mishk.*

F. I, الصف و يتراصون في الصف (كتاب الصلوة في تسوية الصف ...; and again : (*Mishk.*, *ib.*, *F.*, III.) وسدوا الخلل, the reason being that Satan avails himself of such intervals to enter (*ib.*, *F.* II.)

(5) لبوس الرداء آخ—the injunction is intended to secure that the shoulders shall be covered; the Prophet prayed in one garment on one occasion, it is said, but so arranged it :

قال (عمر بن ابي سلمة) رأيت رسول الله صلعم يصلي في ثوب واحد مشتملاً به في بيت ام سلمة واضعاً طرفيه علي عاتقيه (باب الستر. (*Mishk.*, *F.* I.

3, 9-10, 3: Anas b. Mālik, with kunyah Abū Hamzah, given him by the Prophet by reason of his liking for a certain herb or plant (*Naw.*, 165); when the Prophet came to Medinah, he was ten years old, and became his servant, and was present with him, though he did not fight, at Badr; he died c. 93, at an advanced age, in Basrah (*Tah.*, I, 690; for his biography and a bibliography see art. on him in *Encyc. of Islam*, 345). Many of his traditions are found in A. b. H., III, 98—292).

Abū Umayyah 'Amr. b. Hishām—d. 245; was quoted by Md. b. Md. b. Sulaimān al-Bāghandī; related from the following (*Tah.*, VIII, 187).

Makhlad b. Yazīd al-Ḥarrānī—d. 193 (*Tah.*, X, 133; *Sam.*, 161).

Abū Yūsuf Md. b. Aḥmad aṣ-Ṣaidalānī ar-Raqqī—d. 246 (*Tah.*, IX, 34).

Zayd b. 'Alī b. Dīnār—related from the following and was quoted by the preceding (*Tah.*, III, 771).

Ja'far b. Burqān—d. c. 150 (*Tah.*, II, 131).

'Abdu'l-lāh b. Md. b. 'Aqīl—related from Anas b. Mālik; d. 145 (*Tah.*, VI, 19; *Naw.*, 368).

For Anas' statement concerning 'Umar's earnestness of devotions, see *Intr.*, IV.

Al-Hajjāj b. Yūsuf ath-Thaqafī—c. 45—95; notorious throughout the East for his cruelty during his twenty years of government in 'Irāq, etc. (*Tah.*, II, 388).

The incident referred to in ll. 14—21 is narrated with greater circumstance and some difference in detail in A. b. H. III, 177²⁰⁻²⁵, 186¹⁰⁻¹⁶, and 198¹³⁻¹⁷; the last-mentioned passage reads: ... عن انس بن مالك قال قدم

على النبي صلعم ثمانية نفر من عكل فاسلموا فاجتروا المدينة فامرهم رسول الله صلعم ان يأتوا ابل الصدقة فيشربوا من ابوالها و البانها ففعلوا

فصَحُوا فارتَدُّوا و قَتَلُوا رَعَاتَهَا أَوْ رَعَاهَا و سَاقَوْهَا فَبِعَتْ رَسُولُ اللَّهِ
صَلِّعُمْ فِي طَلَبِهِمْ قَانِدَةً فَأَتَى بِهِمْ فَقَطَعَ أَيْدِيَهُمْ و أَرْجَلَهُمْ و لَمْ يَحْسَبْهُمْ
حَتَّى مَاتُوا وَ سَمِلَ أَعْيُنَهُمْ.

The traditions of Anas are against the Prophet's making use of dye; that he did not do so was apparently not from principle—see, e.g. A. b. H., II, 309⁵⁻⁶, while Abū Bakr and 'Umar b. al-Khattāb applied henna, etc.—but because his hair remained dark: A. b. H., III, 160²⁴⁻³⁰, 178²⁵⁻²⁷, 198²⁹⁻³¹, 206¹⁹⁻²¹, 223⁸⁻¹⁰, 227⁷⁻⁹; his grey hairs did not exceed a score, even at death: *ib.*, 100³, 148³, 240¹¹⁻¹²; he is said to have regarded grey hairs as زَيْن and not, as popularly, فضيحة, *ib.*, 145¹⁴⁻¹⁷; and to have called them نور الاسلام, A. b. H., II, 212²⁵. Tradition is not unanimous, however, regarding his not using a dye for his beard at least: cf., e.g., the tradition of 'Abdū'l-lāh b. 'Umar b. al-Khattāb (A. b. H., II, 17³¹); while from the following tradition of Umm Salmah: (عثمان بن عبد الله بن موهب):

دَخَلْتُ عَلَيَّ أُمِّ سَلْمَةَ فَأَخْرَجَتْ إِلَيْنَا شَعْرًا مِنْ شَعْرِ النَّبِيِّ صَلِّعُمْ مَخْضُوبًا
(*Mishk.*, F. III., باب التَّجْلِيلِ) it is generally concluded that he was wont to dye the hair of his head; an attempt to reconcile the statements of Anas with the latter passage has been made, by Mulla 'Alī al-Qārī, writer of the *Mirqāt* or commentary on the *Mishkāt*, for instance, by supposing that the Prophet applied some scent which had the result of colouring the hair, or that he used dye but very rarely.

٣, 3—8: Bakr b. Muḍar al-Miṣrī—c. 100-c. 173 (*Tah.* I, 899; *Tab. Huḡ.*, V, 67).

Ṣakhr b. 'Abdī'l-lāh b. Harmalah al-Mudliji—related from 'Umar II (*Tah.*, IV, 710).

'Ayyāsh b. Abī Rabi'ah—an early convert; d. c. 15; Anas related from him (*Tah.*, VIII, 360).

مُرُورُ الْعِمَارِ وَالْكَلبِ وَالْمَرْأَةِ—these, according to the tradition of Abū Hurairah, stop prayer: A. b. H., II, 299²⁴⁻²⁶; and also according to Abū Dharr (Abū Dā'ūd, باب ما باب ما جاء أنه لا يقطع الصلاة إلا الكلب آج, *Tirm.*, يقطع الصلاة; *Tirm.*, باب ما جاء أنه لا يقطع الصلاة إلا الكلب آج).

Aḥmad b. Hanbal (*Tirm.* *ib.*) maintains that a black dog does stop and nullify prayer, but is in doubt regarding the effect of the passing of an ass or a woman; ash-Shāfi'i, Sufyān ath-Thawri, and the majority hold that nothing so affects it (*Tirm.*, باب ما جاء أنه لا يقطع الصلاة شيء).

E.g., according to ash-Shāfi'i:

أخبرنا سفيان بن عيينة عن مالك بن مغول عن عون بن أبي جحيفة عن أبيه أنه قال رايت رسول الله صلعم بالابطح و خرج فخرج بلال بالعنزة فركبها فصلى اليها والكلب والمرأة والحمار يمررون بين يديه :

(*Musnad*, K. al-Imāmah, p. 33, ed. lith. Arrah, ١٣٠٦)

٢, 9—10: Abū'l Husain, i.e., Md. b. al-Muẓaffar, the *rāwī* of Abū Bakr al-Bāghandī.

Md. b. Mūsā al-Ḥaḍramī—related many traditions on the authority of Yūnus b. 'Abdī'l-A'lā (*Tah.*, XI, 853), but Abū Sa'īd b. Yūnus al-Miṣrī considered him ضعيف in this connection (*Lis. Miz.*, V, 1300).

٢, 10—16: Hishām b. Khālīd al-Azraq—154—249; related from the following (*Tah.*, XI, 77).

Al-Walīd b. Muslim ad-Dimashqī, 119—194; related from Bakr b. Muḍar (*Tah.*, XI, 254). The isnād is as at ٢, 4. The ḥadīth is here منقطع inasmuch as 'Ayyāsh died c. 15 A.H. (*Tah.* VIII, 360). The *wāsiṭah* is Anas, as at ٢, 5.

٢, 17—22: Sālim b. 'Abdī'l-lāh b. 'Umar b. al-Khaṭṭāb—his mother was a slave-girl (I. Khal., de Slane, II, 210); he is mentioned by 'Alī b. al-Ḥasan al-'Asqala'nī, on the authority of Ibnu'l-Mubārak, as one of the seven juriconsults of Madīnah (cf. I. Khal., de Slane, I, 264); related from his father (*Tah.*, V, 565); died in 106, (*Tah.*, III, 807).

'Umar b. Ya'qūb b. Yahyā ar-Raqqī—مجهول (*Lis. Miz.* IV, 972).

'Abdu'l-lāh b. Md. b. Abī Usāmah—Abū Usāmah's name was Zayd b. 'Alī b. Dīnār; his son Md. (186—282), known as Ibn Abī Usāmah (٢, 22), related from him (*Tah.*, III, 771; *Tab. Huf.*, IX, 99).

Mubashshir b. Ismā'il al-Ḥalabī—d. 200 (*Tah.*, X, 51). رفع يديه (l. 20)—the controversy is as to whether this should be both before and after ركوع; Sufyān ath-Thawrī and Abū Ḥanīfah are opposed to the double occasion, basing on the tradition of 'Abdu'l-lāh b. Mas'ūd:

(باب رفع اليدين عند الركوع (Tirm., النبي صلعم لم يرفع الا في أول مرة)

Ibnu'l-Muẓaffar, i.e., Md., *rāwī* of al-Bāghandī.

Ibn Šā'id, i.e., Yahyā b. Md. b. Šā'id—228—318; a contemporary of al-Bāghandī's, and said to be the repository of more ḥadīth than he (*Tab. Huf.*, X, 109; *Yāq.*, Index, 769).

Isnād as at ٢, 18.

c, 1—7: Mu'āwiyah b. Abī Sufyān—according to his own statement he accepted Islām on the day of the conclusion of the Treaty of Hudaibiyah (6 A.H.); he was one of the amanuenses of the Prophet, and recorded his revelations; he was Governor of Syria under 'Umar and 'Uthmān, and reigned as Khalifah over the whole Islamic Empire from 41—60 (*Tah.*, X, 385; *Naw.*, 564).

'Atīyah b. Baqīyah b. al-Walīd—related from his father, Baqīyah (d. 197). on whom *see* note, *supra*, r, 5, and *Tah.*, I, 878.

Bishr b. 'Abdī'l-lāh b. 'Umar b. 'Abdī'l-'Azīz—'Abdu'l-lāh and 'Abdu'l-'Azīz related from their father, 'Umar II (*Tah.*, VII, 790); Bishr occurs again at a, 16, but in an isnād *muttaṣil*,—here it is *munqatī*.

Sa'id b. al-'Ās—said to have been nine years old at the time of the decease of the Prophet; one of those employed by 'Uthmān to prepare a universally accepted text of the Qur'ān; appointed by Mu'āwiyah, Governor of Madīnah in 49, and deposed by him in 54 (*Tab.*, II, 86, 164); d. c. 57 (*Tah.*, IV, 78). Mu'āwiyah may have made the pilgrimage in 50 (*Tab.*, II, 94), or in 51, when he is said to have taken the covenant for his son, Yazīd (*Suy.*, *Tar. Khul.*, sect. on Mu'āwiyah b. Abī Sufyān).

The text at c, 5 is obviously faulty; the easiest solution would be to read; (عمر بن عبد العزيز) ... المدينة قال

وسعيد بن العاص كان اميراً فبقام له قال (عمر بن عبد العزيز) فقال معاوية ...

The meaning of the passage appears to be that Mū'āwiyah declares himself better versed in *fiqh* than Sa'id, as the latter rose as a mark of respect to an entrant. Cf. A. b. H., IV, 91⁵⁰, 93¹⁶, where Ibn 'Āmir is stated to have stood up to receive Mu'āwiyah, but Ibn Zubair, possibly from political animosity, did not, and Mu'āwiyah aptly quoted the Prophet's authority in similar terms; cf. also A. b. H., IV, 100¹¹.

c, 8—13: 'Ā'ishah, ام المؤمنين—daughter of the Khalifah Abū Bakr as-Ṣiddīq; wife of the Prophet; d. c. 58 (Ibn Sa'd, VIII, 39; *Naw.*, 848; *Tah.*, XII, 2841).

Md. b. (al-) Muṣaffā al-Himsī—related from Baqīyah, and was quoted by Md. b. Md. b. Sulaimān al-Bāghandī; d. 246 (*Tah.*, IX, 742).

Baqīyah b. al-Walīd—related from the following (*Tah.*, I, 878; and *see* n. at r, 5).

'Abdu'r-Rahmān b. 'Amr al-Auzā'i—c. 88—c. 157; "the chief imām, or doctor of the law, among the Moslems of Syria, was the most learned man of that country in the

science of jurisprudence" (I. Khal., de Slane, II, 84; *Tah.*, VI, 484; *Tab. Huf.*, V, 20).

Usāmah b. Zayd al-Laythī—was quoted by al-Auzā'i; d. 153 (*Tah.*, I, 392).

Zabbān b. 'Abdī'l-'Azīz b. Marwān—related from his half-brother, 'Umar II, (*Tah.*, VII, 790); perished, with Marwān al-Himār (r. 127—132), last of the Umaiyad Khalifas, in battle at Būsir in 132 (al-Kindī, *al-Wulāt*, etc., 97). The isnād is منقطع. The *matn* is connected with that

at *inf.*, 5, 16—17. The opinion of Sufyān ath-Thawrī and Abū Ḥanīfah on *witr* is: قال سفيان ان شئت اوترت بخمس و ان شئت اوترت بثلاث و ان شئت اوترت بركعة قال سفيان و الذي استحب ان يوتر بثلاث ركعات (باب ما جاء في الوتر بثلاث) (Tirm.,

Abū Ḥanīfah differs from the other three Imāms and from the tradition in the Musnad: Mālik, ash-Shāfi'i and Aḥmad b. Hanbal hold that *salām* should separate the first two *rak'as* and the third (5, 12, 17), whereas Abū Ḥanīfah would confine it to the conclusion of all three *rak'as* (Tirm., (باب ما جاء في الوتر بركعة)).

5, 13—17: Abū Naṣr Md. b. Khalaf al-'Asqalānī—d. 260 (*Tah.*, IX, 213).

Md. b. Yūsuf b. Wāqid—his *nisbah* is given at 5, 15 as al-Firiyābī (Yāq., III, 840), and is found in the forms al-Fāriyābī and al-Firyābī (Sam., 426); he related from al-Auzā'i (5, 15), and was quoted by Md. b. Khalaf; d. 212 (*Tah.*, IX, 878; *Tab. Huf.*, VII, 50).

Al-Faḍl b. Ya'qūb ar-Rukhāmī—was quoted by al-Bāghandī; d. 258 (*Tah.*, VIII, 528).

The isnād is as at 5, 10, and is منقطع. This ḥadīth is given in practically the same words by A. b. H. (1, 84²), where too the isnād is munqaṭi', and only differs in the authorities posterior to al-Auzā'i.

5, 18—1, 3: Asmā' bint 'Umais—an early convert; emigrated with her husband, Ja'far b. Abī Tālib, to Abyssinia; after his death, married Abū Bakr aṣ-Ṣiddīq, and after him 'Alī b. Abī Tālib, whom she survived (Ibn Sa'd, VIII, 205; Naw., 825; *Tah.*, XII, 2726; *Isābah*, IV, p. 437).

Aḥmad b. Md. b. 'Isā al-Birtī, qāḍī of Wāsiṭ, then of Baghdād; d. 280 (Yāq., I, 546).

Abū Ma'mar 'Abdu'l-lāh b. 'Amr b. Abī'l-Ḥajjāj—related from the following; d. 224 (*Tah.*, V, 574; *Tab. Huf.*, VII, 14).

'Abdu'l-Wārith b. Sa'id—d. 180 (*Tah.*, VI, 923; *Tab. Huf.*, VI, 13).

Shaybān b. 'Abdī'r-Raḥmān—d. 164 (*Tah.*, IV, 628; *Tab. Huf.*, V, 46).

Mis'ar—probably Mis'ar b. Kidām; d. 153 (*Tah.*, X, 209;

Tab. Huf., V, 25). The 'Unwān shows that there is a mistake in the text; *جدة* must indicate 'Umar II, i.e., *عن عبد الله* is a clerical error and should be omitted; read: *محمد بن عبد الله بن عمر بن عبد العزيز*.

This ḥadīth has no sense as it stands, and was obviously preceded by another which is merely referred to in this.

٦, 4—13: Khawlah bint Ḥakīm—a female Companion (Ibn Sa'd, VIII, 113; *Tah.*, XII, 2779).

Md. b. Yahyā b. Abi 'Umar al-Adanī—related from Sufyān; d. 243 (*Tah.*, IX, 847).

Md. b. 'Abdī'l-lāh b. Yazīd—related from Sufyān; d. 256 (*Tah.*, IX, 465).

Md. b. Maymūn al-Khayyāṭ—related from Sufyān; d. 252 (*Tah.*, IX, 790).

Sufyān b. 'Uyainah—107—198 (*Tah.*, IV, 205; Naw., 289).

The isnād henceforward (including Sufyān) is as in A. b. H., VI, 409¹⁸; it occurs again at ٦, 10—11.

Ibrāhīm b. Maysarah—was quoted by Sufyān; d.c. 132 (*Tah.*, I, 313).

'Ubaid b. Abi Suwaid—d. 135; Ibn Ḥajar gives his name as 'Ubaid b. Sawīyah b. Abi Sawīyah, and states that the latter is the correct form (*Tah.*, VII, 140).

The isnād is *منقطع*—as is stated in *Tah.*, XII, 2779: *ارسل عنها (خولة) عمر بن عبد العزيز*. This and the following *matn* are found combined in A. b. H., VI, 409¹⁹⁻²², with but slight difference from the text of the Musnad.

For the Prophet's conferment of the names *حسن* and *حسين* see A. b. H., I, 98^{23, 24}.

مَجْبَنَةٌ, "a cause of cowardice or weak-heartedness"

(Lane's Lex.); *مَبْخَلَةٌ*, a cause of, or a thing that incites to,

بُخْل (or niggardliness, etc.): a word of the same class as

مَفَارَظَة and *مَعْطَشَة* and *مَهْلَكَة* and *مَجْبَنَة*, etc. So explained as

occurring in the tradition: — *الْوَلَدُ مَبْخَلَةٌ مَجْبَنَةٌ* (children are a cause of niggardliness and a cause of cowardice),—because on account of them one loves property, and continuance of life" (Lane's Lex., s. *مَبْخَلَة*).

For Wajj (وَجَّ, ٦, 13), see Yāq., IV, 904. Lane translates the tradition: "The last assault, or conflict, which God [الله, not, as in the Musnad, رَبِّ] caused to befall

(the unbelievers was) in Wejj (a valley of at-Ṭā'if)" (*Lex.*, s. وِجْج)

٦, 14-٨, 13: Of the nine traditions given under this heading, Nos. 1, 2, and 6 are attributed to both, and the remainder to 'Abdu'l-lāh b. Qāriẓ, hence the addition of the latter's name to the heading, and in the form in which it occurs at ٢٦, 17, where two of the ḥadīth (٨, 1-6, and ٨, 6-13) are repeated in almost identical form.

٦, 14-19: Sa'īd b. al-Musayyib—c. 15-c. 94; quoted from Abū Hurairah, his father-in-law (*Tah.*, IV, 145; *Tab. Huf.*, II, 14; I. Khall., de Slane, I, 568). He was no well-wisher of the worldly Umayyads: "the founder of this dynasty was the first who styled himself "king," and in this connection the pious Sa'īd b. al-Musayyib makes the bitter remark: May God requite Mu'āwiyah, for he was the first who formed this thing (dominion over the true believers) into a "mulk"! " (*Goldziher, Muh. Stud.*, II, 31).

'Abdu'l-lāh b. Qāriẓ—the name occurs in two forms (apart from the abbreviations, viz., 'Abdu'l-lāh b. Qāriẓ and Ibrāhīm b. Qāriẓ), viz., (a) Ibrāhīm b. 'Abdī'l-lāh b. Qāriẓ, and (b) 'Abdu'l-lāh b. Ibrāhīm b. Qāriẓ, and they have been regarded as denoting different persons. Ibn Hajar believes them to be one and the same, and states that (a) is found in isnāds whose طريق الرجال is;

ابن جرير or عبد الجبار عن الزهري عن عمر بن عبد العزيز *

as here at ٦, 16; ٨, 7; ٢٦, 19; while (b) is found in the following chain: عقیل عن الزهري عن عمر بن عبد العزيز, as at ٧, 2 18. He related from Abū Hurairah (*Tah.*, I, 239).

Yahyā b. Ḥakīm al-Muqawwim—related from the following; was quoted by Md.b. Md.al-Bāghandī; d. 256 (*Tah.*, XI, 337).

Md. b. Bakr al-Bursānī—related from the following; d. 204 (*Tah.*, IX, 96).

'Abdu'l-Malik b. 'Abdī'l-'Azīz b. Juraij—related from the following; d. c. 150 (*Tah.*, VI, 855).

Ibn Shihāb, i.e., Md. b. Muslim az-Zuhri—"one of the most eminent Ṭābi'īs, jurisconsults and traditionists of Madinah. He saw ten of Muḥammad's Companions" (I. Khal., de Slane, II, 581); d. 125 (*Tah.*, IX, 732).

Abū Hurairah—a famous Companion; his name is not known for certain; this kunyah was said to have been "given him by his people because he brought them home one day, in the sleeve of his cloak, the young of a wild cat which he had found whilst tending his flocks. Muḥammad sometimes called him Abū Hīr (the man with the cat)"; he embraced Islām in 7 A.H., and died at Madinah in 57 (I. Khal., de Slane, I, 570, n. 2; *Tah.*, XII, 1216). The

statement is attributed to him that none had more traditions of the Prophet than he, save 'Abdu'l-lāh b. 'Umar, for the latter used to keep a record of them, whilst he himself did not (A. b. H., II, 248⁸¹); his enthusiasm for traditions was acknowledged by the Prophet (A. b. H., II, 373⁸).

The same *isnād* and *matn* are given in A. b. H., II, 272¹⁸⁻²⁷, 280⁵⁻⁸; cf. *ib.*, I, 230³⁻⁵.

The *matn* is repeated at v, 1-4 and v, 17-21, but with the *isnād* of 'Uqail and 'Abdu'l-lāh b. Ib. b. Q.

- v, 1-4: 'Abdu'l-Malik b. Shu'aib b. al-Layth b. Sa'd—related from his father (135-199; *Tah.*, IV, 596), who related from his father, al-Layth b. Sa'd (94-175), who related from 'Uqail (*Tah.*, VIII, 832).

'Uqail b. Khālīd b. 'Aqīl—related from Ibn Shihāb az-Zuhri (*Tah.*, VII, 467); 144 is given as the correct date of his death in *Taqribu'l-Tahdhīb*.

- v, 5-16, 21-Λ, 6: The same *matn*, with little or no difference, occurs at v, 7-8; 10-12; 15-16; 24-Λ, 4-6; and at rv, 9-11. The *isnād* at Λ, 1-4 and rv, 6-9 is the same, and in the remaining instances shows a change usually only in the recent authorities. *Isnād* and *matn* are found in A. b. H., II, 265²³⁻³¹; 271²⁴⁻²⁶. Though such was the *madhhab* of Abū Hurairah, and of az-Zuhri (*infra*, v, 12), and others ('*Umdatul-Qāri*', I, 859), it was not, however, that of the majority of the Companions or their successors, who did not hold *wuḍū'* to be necessary in the circumstances, basing on the practice of the Prophet,—see e.g., A. b. H., I, 226²⁷⁻²⁸, 228¹⁷⁻¹⁸; who ate fle-h, then prayed, and did not use water at all (*ib.*, 227¹⁴⁻¹⁵); and drank milk, and because of the دسم in it rinsed his mouth (*ib.*, 223¹²⁻¹⁴; 227²⁵⁻²⁷); i.e., the ḥadīth of Abū Hurairah is not to be

taken as relating to الوضوء الشرعي (Qur., V, 8).

- v, 5-8: Abū Taqī Hishām b. 'Abdī'l-Malik—was quoted by Abū Bakr al-Bāghandī, and related from the following; d. 251 (*Tah.*, XI, 86).

Md. b. Harb al-Abrash—scribe and *rāwī* of the following; d. c. 192 (*Tah.*, IX, 148).

Md. b. al-Walid az-Zubaidī—related from az-Zuhri; d. c. 147 (*Tah.*, IX, 826).

- v, 9-12: Zuhair b. Md. b. Qumair—related from the following; d. 258 (*Tah.*, III, 644).

'Abdu'r-Razzāq b. Hammām—related from the following; 126-211 (*Tah.*, VI, 608).

Ma'mar b. Rāshid al-Azdi—related from the following; d. c. 154 (*Tah.*, X, 439).

- v, 13-16: Al-Hasan b. Dā'ūd b. Md. b. al-Munkadir—related from the following; d. 247 (*Tah.*, II, 501).

Md. b. Ismā'il b. Muslim b. Abi Fudaik—related from the following; d. c. 200 (*Tah.*, IX, 62).

Md. b. 'Abdī'r-Raḥmān b. al-Mughīrah b. al-Ḥārith b. Abi Dhi'b—related from Ibn Shihāb az-Zuhri; 80—c. 158; he was a reliable traditionist, but careless from whom he related (*Tah.*, IX, 503; *Tab. Huf.*, V, 27).

- v, 17-21: Abū Mūsā Md. b. al-Muthannā al-Baṣrī—is often mentioned with his fellow-townsmen and contemporary, Md b. Bashshār Bundār, their merits being much compared; both died in 252 (*Tah.*, IX, 696; I. Athir, VII, 119).

Abū 'Āmir 'Abdu'l-Malik b. 'Amr al-Baṣrī—was quoted by the preceding, and related from the following; d. c. 204 (*Tah.*, VI, 861).

Ibn Abi Dhi'b (*supra*, v, 14)—this *isnād*, here interrupted, is resumed with Ibn Shihāb (I, 18).

'Abdu'l-Malik b. Shu'aib—for this *isnād* and *matn*, see *supra*, v, 1-4.

- v, 21-Λ, 1: Md. b. 'Uthmān b. Karāmah—related from the following; d. c. 254 (*Tah.*, IX, 561).

Khālid b. Makhlad—d. c. 213 (*Tah.*, III, 221).

'Abdu's-Salām b. Ḥaḥṣ—was quoted by the preceding (*Tah.*, VI, 612).

Ismā'il b. Abī Ḥakīm-*Kātib* of 'Umar II (I. Athir, V, 302); d. 130 (*Tah.*, I, 539).

- Λ, 1-6: 'Abdu'r-Raḥmān b. 'Abdī'l-lāh b. 'Abdī'l-Ḥakam—related from his father, 'Abdu'l-lāh (155-214); the latter heard the *Muwatta'* from Mālik b. Anas (c. 97-179), and was a Mālikī (*Tah.*, V, 489; IV, 423).

Bakr b. Mudar—was quoted by 'Abdu'l-lāh b. 'Abdī'l-Ḥakam, and related from the following; d. c. 173 (*supra*, r, 4; *Tah.*, I, 899).

Ja'far b. Rabī'ah b. Shuraḥbīl—related from the following; d. 136 (*Tah.*, II, 139).

Bakr b. Sawādah—related from az-Zuhri; d. 128 (*Tah.*, I, 888).

- Λ, 6-13: Abū't-Tāhir Aḥmad b. 'Amr.. b. as-Sarḥ—related from 'Abdu'l-lāh b. Wāḥb; d. 255 (*Tah.*, I, 112).

Yūnus b. 'Abdī'l-A'lā—related from 'Abdu'l-lāh b. Wāḥb; 170-264 (*Tah.*, XI, 853).

Abū 'Ubaidī'l-lāh Aḥmad b. 'Abdī'r-Raḥmān b. Wāḥb—his paternal uncle was 'Abdu'l-lāh b. Wāḥb, from whom he related mostly; al-Bāghandi quoted from him; d. 264 (*Tah.*, I, 91).

'Abdu'l-lāh b. Wāḥb—d. 197 (*Tah.*, VI, 140).

'Abdu'l-Jabbār b. 'Umar—was quoted by the preceding, and related from az-Zuhri; d. between 160-170 (*Tah.*, VI, 209).

This *isnād*, without any change, and the *matn* are

repeated at ۲۶, ۱۸-۲۷, ۵, where this ḥadīth would be more in place as it has no connection with Sa'īd b. al-Musayyib.

The first part of this *matn* occurs with but little difference in A. b. H., IV, 95²¹⁻²³, also on az-Zuhri's authority; the latter is more explicit in that it adds:—

علماءكم فقهاؤكم و في يده قصة من شعر
Mu'āwiyah's question is: "where are those among you who know about the *Sunan*, seeing they do not prevent the wearing of such a قصة as this, which was the cause of the affliction of the Israelites when their women-folks adopted this style?" (See, also, A. b. H., IV, 97²⁴⁻⁹⁸).

Regarding the latter portion, Ibn Ḥajar's note in his (p. 106; lith., Delhi) التلخيص الحبير في تخريج أحاديث الرافعي الكبير

لعن رسول الله صلعم : on the form in which it is given there : الواصلة و المستوصلة الواشمة و المستوشمة و الواشرة و المستوشرة is as follows :

و يروى الموشمة بدل المستوشمة و الموشرة بدل المستوشرة متفق عليه من حديث ابن عمر و اللفظ للبخاري الآ قوله الواشرة و المستوشرة و قد قال الرافعي في التذنيب^۱ انها في غير الروايات المشهورة و هو كما قال فقد رويناها في مسند عمر بن عبد العزيز للباعندي من حديث معاوية و رواه ابو نعيم^۲ في المعرفة في ترجمة عبد الله بن عطاء الاشعري^۳ *

The text has probably suffered in transmission or in copying, and may originally have had a parallelism similar to that in Bukhārī, Muslim, etc., on Ibn 'Umar's authority (*Mishkāt*, B. الترجل, *Faṣl* I).

۸, ۱4ff. Abān b. 'Uthmān b. 'Affān—related from his father, the Khalīfah 'Uthmān (r. 23-35); d. 105; was quoted by 'Umar II (*Tah.*, I, 173).

Aḥmad b. Md. b. 'Umar b. Yūnus al-Yamāmī—cf. Abū Sahl Aḥmad b. Md. b. 'Umair b. Yūnus al-Yamāmī al-Ijlī (Sam., 602).

Mt. Hirā' is some three miles distant from Makkah; Muḥammad used to resort to it for meditation, and there the first revelation (Qur., XCVI, 1-5) was made to him (Tab., I, 1147, ff.). Over against it is Mt. Thabir.

The tradition has a variety of forms, both in regard to

^۱ *Tadhniḥ fī l-Furū'*, by Abū'l-Qāsim 'Abdu'l-Karīm b. Md. ar-Rāfi' ash-Shāfi' (d. 623; *Kashf. Zun.*, I, 278, Stam., 1311; see Brock., I, 398, 424).

^۲ Brock., I, 362.

^۳ Tab., II, 397, 417.

the number of persons specified and to the locality. In this Musnad there are eight persons excluding the Prophet; in the tradition of Sa'id b. Zayd there are nine such (A. b. H., I, 189¹⁵); according to Abū Hurairah they were six (*Mishk.*, F. I, باب مناقب العشرة); Sa'd and Sa'id are often excluded, and sometimes 'Abdu'r-Raḥmān b. 'Auf.

Again, the Prophet's command is given as: (a) اسكن حراء as here, and in A. b. H., I, 59¹⁹; 187⁸¹; (b) اسكن ثبير, *Mishk.*, F. II, باب مناقب عثمان; (c) in the tradition of Anas b. Mālik, it is أثبت احد, *Mishk.*, باب مناقب هرواء الثلاثة; Abū Dā'ūd, باب في الخلفاء; and see A. b. H., III, 112²⁴; Mt. Uḥud is situated slightly to the north of Madīnah, and was the scene of a disaster to the Muslims in 3 A.H.; (d) أثبت حراء, Abū Dā'ūd, *ib.*; A. b. H., I, 189¹⁵; (e) أثبت حراء او احد, A. b. H. I, 188²³.

9, 3-9: Abū Bakr b. 'Abdī'r-Raḥmān b. al-Ḥārith b. Hishām—related from Abū Hurairah, and was quoted by 'Umar II; d. c. 93 (*Tah.*, XII, 141).

Abū Bakr 'Abdu'l-lāh b. Md. b. Abī Shaybah Ibrāhīm—related from Ibn 'Uyainah, and was quoted by Md. b. Md. b. Sulaimān al-Bāghandī; d. 235 (*Tah.*, VI, 1).

'Uthmān b. Md. b. Abī Shaybah Ibrāhīm—was quoted by Md b. Md. b. Sul. al-Bāghandī; d. 239 (*Tah.*, VII, 298).

Al-'Abbās b. Yazīd—related from Ibn 'Uyainah (*Tah.*, V, 232); was quoted by al-Bāghandī; d. 258 (Yāq., I, 508). Sufyān b. 'Uyainah—related from the following; (*Tah.*, IV, 205; see *sup.*, 1, 6).

Yahyā b. Sa'id b. Qays al-Anṣārī—d. c. 144 (*Tah.*, XI, 360).

Abū Bakr b. Md. b. 'Amr b. Ḥazm—was quoted by the preceding, and related from the following; d. c. 120 (*Tah.*, XII, 154).

Isnād and *matn* are found in A. b. H., II, 247²²⁻²⁴, but with the addition of اقراً, (Qur., XCVI, 1); the *matn* of the MS. is given on Abū Hurairah's authority at *infra*, 11, 1, 3, 4; also in A. b. H., II, 281²⁻³; and with the addition of اقراً, in A. b. H., II, 249¹⁷; *Mishk.*, B. Sujūdu'l-Qur'ān, F. 1; cf. *inf.*, 11, 9-10.

9, 9-11, 13: Confusion in the text is readily apparent from the exact correspondence of the following pairs of *Isnāds*; 9¹³⁻¹⁵, 10¹³⁻¹⁴; 9¹⁵⁻¹⁷, 10¹⁵⁻¹⁶; 9¹⁷⁻¹⁹, 10¹⁶⁻¹⁹; 9²⁰⁻²², 10¹⁹⁻²¹; 9^{23ff}, 10^{23ff}; 11²⁻⁵, 11²⁻⁴. The *matn* is found also in the second part of the Musnad, *viz.*, at 11, 12-13, 16-17.

- ٩, 9-13: Ishāq b. Mūsā al-Anṣārī—related from Sufyān (*sup.*, ٩, 6); d. 244 (*Tah.*, I, 474).
 al-Abbās b. Yazīd—*isnād* as at ٩, 5-8. *Isnād* and *matn* are found in A. b. H. II, 247²⁴⁻²⁶; *ib.*, 258¹⁷⁻²⁰; *ib.*, 474⁷⁻⁹; the *matn* at *ib.*, 347⁸⁻⁹.
- ٩, 13-15: Ibnu'l-Muqri', Md. b. 'Abdi'l-lāh b. Yazīd—related from Sufyān b. 'Uyainah, d. 256 (*Tah.*, IX, 465).
 'Amr b. Dīnār—was quoted by Sufyān; d. c. 125 (*Tah.*, VIII, 45).
 Hishām b. Yahyā—was quoted by the preceding, and related from Abū Hurairah (*Tah.*, XI, 95).
 Umar II's name is not found in the *isnād* which has been given here as evidence for the tradition; it is given with its *matn* in A. b. H., II, 249¹⁻³.
- ٩, 15-17: The *isnād* is composed of the *rijāl* at ٩, 10 and ٩, 13 but is منقطع; cf. A. b. H., II, 249¹⁻³.
- ٩, 17-19: Abū Mūsā Ishāq b. Mūsā al-Anṣārī—related from the following; d. 244 (*Tah.*, I, 474).
 Anas b. 'Ayyād—d. c. 200 (*Tah.*, I, 689). *Isnād* as at ٩, 10.
- ٩, 20-23: Abū Mūsā al-Anṣārī—related from the following; *sup.*, ٩, 17.
 Ma'n b. 'Isā—related from the following; d. 198 (*Tah.*, X, 452).
 Mālik b. Anas—related from Yahyā b. Sa'id; d. 179; *jāmi'* of the *Muwatta'*, "which forms part of the basis on which the Malikite system of jurisprudence is grounded" (*Tah.*, X, 3; I. Khall., de Slane, II, 545). *Isnād* as at ٩, 10.
- ٩, 23-١٠, 3: Aḥmad b. 'Abdi'l-lāh b. Maymūn—was quoted by Abū Bakr al-Bāghandī; d. 246 (*Tah.*, I, 84).
 'Abdu'r-Rahmān b. Mahdī—related from Mālik b. Anas; d. 198 (*Tah.*, VI, 549). *Isnād* as at ٩, 20, except that, as is stated, 'Umar II is omitted.
- ١٠, 3-5: Abū-ṭ-Ṭāhir Aḥmad b. 'Amr.—*sup.*, ٩, 6.
 'Abdu'l-lāh b. Wahb—*sup.*, ٩, 7; related from Mālik. *Isnād* as at ٩, 20.
- ١٠, 5-9: 'Isā b. Ḥammād Zughbah (the last his لقب)—was quoted by Md. b. Md. b. Sul. al-Bāghandī, and related from the following; d. c. 248 (*Tah.*, VIII, 386).
 Al-Layth b. Sa'id—related from Yahyā b. Sa'id; 94-175 (*Tah.*, VIII, 832; I. Athīr, VI, 84). *Isnād* as at ٩, 10. At-Tirmidhī gives this ḥadīth with this *isnād*, and describes it as a حديث حسن صحيح (etc. ما جاء إذا افلس B.).
- ١٠, 9-13: Ibrāhīm b. 'Abdi'l-lāh b. Ḥātim—d. 244 (*Tah.*, I, 235; *Tab. Huf.*, VIII, 72).

Hammād b. Zayd—d. 179 (*Tah.*, III, 13). *Isnād* as at 9, 10.

10, 13-14: *Isnād* as at 9, 13.

10, 15-16: *Isnād* as at 9, 15.

10, 16-19: *Isnād* as at 9, 17.

10, 19-22: *Isnād* as at 9, 20.

10, 23-11, 1: *Isnād* as at 9, 23.

11, 2-4: *Isnād* as at 10, 3.

11, 4-7: 'Uthmān b. b. Abī Shaybah—*sup.*, 9, 5; related from Hushaim.

Ibrāhīm b. 'Abdī'l-lāh b. Ḥātim—*sup.*, 10, 9; related from Hushaim.

Hushaim b. Bashīr—related from Yaḥyā b. Sa'īd; d. 183 (*Tah.*, XI, 100; cf. *Tab. Huf.*, VI, 4). *Isnād* as at 9, 10; *isnād* and *matn* are given in A. b. H., II, 228,²⁸⁻²⁹ which reads عند for بيد, and omits من الغرماء of the Musnad.

11, 8-13: Md. b. 'Abdī'l-lāh b. 'Ammār al-Mausili—was quoted by Md. b. Sulaimān al-Bāghandī, and related from the following; 162-242 (*Tah.*, IX, 442).

Zayd b. Abī'z-Zarqā—related from Sufyān; d. 194 (*Tah.*, III, 754). *Isnād* as at 9, 10. This tradition is found also at *inf.*, 13, 12, 16, 20.

Part II.

13, 5: Ibn Ṭabarzad cites here two Shaykhs, Abū'l Mawāhib (1, 7), and the qāḍī Abū Bakr al-Anṣārī (Introd., XXI).

13, 9-13: Md. b. Zunbūr—related from the following; d. c. 248 (*Tah.*, IX, 247, where he has the *nisbah* al-Makkī but not al-Abtahī).

'Abdu'l-'Azīz b. Abī Ḥāzim—related from the following; 107—c. 184 (*Tah.*, VI, 641).

Yazīd b. 'Abdī'l-lāh b. Usāmah b. al-Hād—related from Abū Bakr b. Md. b. 'Amr b. Ḥazm; d. 139 (*Tah.*, XI, 651). *Isnād* as at 9, 10; the *matn* is similar.

13, 13-17: Ahmad b. 'Amr b. 'Abdī'l-lāh b. 'Amr b. as-Sarh—d. 255 (*Tah.*, I, 112).

Isnād as at 13, 10.

13, 17-20: *Isnād* as at 9, 10 and 13, 10.

13, 20ff. An-Nadr b. Salmah al-Marwazī, with Shādhān as *laqab*—his credibility is impugned (*Lis. Mīz.*, VI, 568).

Yaḥyā b. Ibrāhīm b. 'Uthmān b. Dā'ūd b. Abī Qutailah—was quoted by the preceding (*Tah.*, XI, 298).

Ismā'il b. Rāfi—died after 110 (*Tah.*, I, 547).

The tradition as given in Suy., (*Tar. Khul.*, فصل في بيان

و قال البرار حدثت ... عن ابي عبيدة بن الجراح قال قال رسول

is: ان الأئمة من قريش اخ

الله صلعم ان اول دينكم بدا نبوة و رحمة ثم يكون خلافة و رحمة ثم يكون ملكا و جبرية حديث حسن *

In the *Mishkāt* (F. 3rd. - باب الانذار و التحذير) there is a similar tradition on the authority of النعمان بن بشير عن قال حبيب فلما قام عمر : after which it is stated : بن عبد العزيز كتبت اليه بهذا الحديث اذكرة ايالة و قلت ارجو ان تكون امير المؤمنين بعد الملك العاض و الجبرية فسر به واعجبه يعني عمر بن عبد العزيز *

Cf. the tradition of Hudhaifah in A. b. H., V, 404⁸⁻⁹ 11, 6-18: 'Amr. b. 'Uthmān b. Sa'id b. Kathir b. Dīnār al-Qurashī al-Himsī—d. 250 (*Tah.*, VIII, 111).

Bishr b. Shu'aib b. Abī Hamzah—related from his father, and was quoted by the preceding; d. 213 (*Tah.*, I, 827).

Shu'aib b. Abī Hamzah—related from az-Zuhri, whose Kātib he is said to have been; d. c. 162 (*Tah.*, IV, 588).

Naufal b. Musāhiq was quoted by 'Umar II, and related from the following; d. c. 74 (*Tah.*, X, 883; *cf.* I. Ath., IV, 382).

'Uthmān b. Hunaif—a Companion; appointed with Hudhaifah b. al-Yamān a governor in 'Irāq in 16 A.H. by 'Umar b. al-Khattāb (*Tab.*, I, 2456); d. in the reign of Mu'āwiyah (r. 41-60; *Tah.*, VII, 241).

The incident occurs again with the *isnād* of Naufal b. Musāhiq at 15, 1-9, but 'Umar II is not included.

11, 18-15, 9: Ishāq b. Ibrāhīm b. Suwaid—d. 234 (*Tah.*, I, 402).

Ibn Abī Uwais—related from his brother, Abū Bakr; d. c. 226 (*Tah.*, I, 568).

Abū Bakr 'Abdu'l-Ḥamīd b. 'Abdi'l-lāh—d. 202 (*Tah.*, VI, 237).

Naufal b. Musāhiq—see 11, 8. The narrative is as at 11, 9-18. The *isnād* is منقطع.

15, 10-14: 'Urwah b. az-Zubair b. al-'Awwām—c. 22-c. 94, (*cf.* I. Khal., de Slane, II, 199); related from his maternal aunt, 'Ā'ishah, and was quoted by 'Umar II (*Tah.*, VII, 351; *Tab. Huf.*, II-26).

Md. b. 'Abdi'l-lāh b. al-Mubārak al-Mukharramī—was quoted by Md. b. Md. b. Sulaimān al-Bāghandī, and related from the following; d. c. 255 (*Tah.*, IX, 452). Al-Ḥasan b. Mūsā al-Ashyab—d. c. 209 (*Tah.*, II, 560).

Shaybān b. 'Abdi'r-Rahmān—was quoted by the preceding, and related from the following; d. 164 (*Tah.*, IV, 628).

Yahyā b. Abī Kathir—related from the following; d. c. 129 (*Tah.*, XI, 539; *Tab. Huf.*, IV, 20).

Abū Salmah b. 'Abdī'r-Raḥmān b. 'Auf-d. c. 94 (*Tah.*, XII, 537).

For the *riwāyat*, cf. A. b. H., VI, 40²²⁻²⁶; 42²²⁻²³; 44¹⁶⁻¹⁷; 59⁶⁻⁷. It occurs again at 15, 18; 17, 1; 5.

15, 15-18; The Shaykh is al-Bāghandī, the *jāmi'* of the Musnad. 'Abdul-lāh b. Sulaimān b. al-Ash'ath—son of Abū Dā'ūd, compiler of the *Sunan*, in which he is said to have included four thousand and eight hundred traditions (dealing with jurisprudence and the rules regarding ritual) out of some five hundred thousand he had collected (Huart, *Ar. Lit.*, 219); d. 316 (*Tab. Huf.*, X, 108; see Yāq., Index, p. 502, for further references).

Yazīd b. 'Abdī'l-lāh b. Zuraiq—was quoted by the preceding, and related from the following (*Tah.*, XI, 653).

Al-Walid b. Muslim—related from al-Auzā'i; see *sup.*, 11.

Al-Auzā'i—related from Yahya b. Abī Kathīr; *sup.*, 5, 10. Isnād as 15, 12.

15, 18ff. Abū Bakr Md. b. Sahl b. 'Askar—d. 251 (*Tah.*, IX, 324).

Yahyā b. Ṣāliḥ al-Wuhāzī—was quoted by the preceding, and related from the following; d. c. 222 (*Tah.*, XI, 371; *Tab. Huf.*, VII, 89).

Mu'āwiyah b. Sallām—related from the following; d. c. 170 (*Tah.*, X, 388; *Tab. Huf.*, V, 70). Isnād as at 15, 12.

17, 2-5: Ibrāhīm b. Marwān b. Md.—related from his father (*Tah.*, I, 293).

Marwān b. Md. at-Tātari—related from Mu'āwiyah b. Sallām; d. 210 (*Tah.*, X, 175; cf. *Tab. Huf.*, VII, 44) Isnād as at 15, 19. At 17, 4, it is expressly stated (الخبر) that 'Umar II heard directly from 'Urwah, and the latter from 'Ā'ishah.

17, 5-13: Md. b. 'Abdī'l-lāh b. 'Abdī'r-Raḥīm al-Barqī-d. 249 (*Tah.* IX, 437).

'Abdu'l-lāh b. Ṣāliḥ—related from al-Layth b. Sa'd (10, 6), who related from the following; d. c. 222 (*Tah.*, V, 448).

Khālīd b. Yazīd al-Misrī—related from the following; d. 139 (*Tah.* III, 235).

Sa'd b. Abī Hilāl—related from the following; d. c. 135 (*Tah.*, IV, 159).

Rabī'ah b. Abī 'Abdī'r-Raḥmān—d. c. 133 (*Tah.*, III, 491).

Ṣāliḥ b. Kaysān—tutor to the children of 'Umar II; related from 'Urwah b. az-Zubair; d. after 140 (*Tah.*, IV, 682).

Abū Ḥanīfah argues from the tradition of 'Urwah and 'Ā'ishah for the limitation of prayer to two *rak'as*, as against ash-Shāfi'i, Mālik b. Anas, etc., who hold both قصر and تمام

to be permissible. According to 'Ā'ishah the Prophet did both (*Mishk.*, B. *Salātu's-Safar*, F. II); but in F. III, *ib.*, she is again quoted in this connection, and the tradition there is explanatory of 'Urwah's reply in the affirmative و عن عائشة قال فرضت الصلوة ركعتين : (13, 16, *Musnad*, بلى) ثم هاجر رسول الله صلعم ففرضت اربعا و تركت صلوة السفر علي الفريضة الاولى قال الزهري قلت لعروة ما بال عائشة تنم قال تناولت كما تناول عثمان *

Al-Qārī discusses in 'Umdat (II, 212) the grounds for 'Uthmān's praying four *rak'as*. See also A. b. H., IV, 94²¹⁻²⁹. 'Abdu'l-Ḥaqq Dihlawī believes the reason to be that 'Uthmān considered *qasr* the peculiar privilege of the traveller, whereas one who halts should pray four *rak'as*, he being in the position of one staying there (*Sharḥ Mishkāṭ*, B. *Salātu's-Safar*, F. III). Other references to two *rak'as* in A. b. H. are : II, 20¹¹; 31¹⁴.

17, 13-18: Aḥmad b. Yahyā as-Sūsī—according to Yāq. (III, 189), related from al-Aswad b. 'Āmir (d. 208; *Tah.*, I, 619); was quoted by Abū Bakr b. Abī Dā'ūd (d. 316; *Tab.*, *Huf.*, X, 108; *Sam.*, 317^b).

Md. b. 'Umar b. Wāqid al-Wāqidī—author of *K. al-Maghāzī* may be intended here; d. c. 207 (*Tah.*, IX, 604).

Md. b. Khālīd b. 'Athmah—related from Ibrāhīm b. Ismā'il b. Abī Habibah (l. 15; *Tah.* IX, 199).

Ismā'il b. Abī Hakīm—d. 130; see v, 22.

Ibn Abī Habibah, i.e., Ibrāhīm b. Ismā'il—was quoted by al-Wāqidī, and related from the following; d. 165 (*Tah.*, I, 180); with him the second *isnād* of Md. b. 'Umar probably begins if the text is correct.

Dā'ūd b. āl-Ḥusain—d. 135 (*Tah.* III, 345).

A. b. H. (VI, 50¹⁹) quotes the *matn* on the authority of Hishām b. 'Urwah b. az-Zubair, then from 'Urwah and 'Ā'ishah; cf. *ib.*, 41¹⁶, 54²⁷.

l. 18: اعترافاً i.e., معترضة اعتراضاً (*ma'f'ul muṭlaq*).

This ḥadīth would support that at *sup.*, 4, 8, and 16 but be opposed to that quoted by Abū Dā'ūd, e.g., to the effect that a امرأة و كلب اسود و حمار باب ما يقطع الصلاة).

For ايقظني occurs also ضرب رجلي, i.e., though there has been contact (مس), yet *Wuḍū'* is not affected, and this is cited by Abū Hanīfah, etc., as an argument that مس النساء does not render *wuḍū'* null (Abū Dā'ūd, لا المرأة لا يقطع الصلاة).

16, 18-22: 'Ubaidu'l-lāh b. Mūsā—related from the following; was quoted by Md. b. Sulaimān al-Bāghandī al-Kabīr; d. c. 213 (*Tah.*, VII, 97).

Shaybān b. 'Abdī'r-Rahmān—related from Yahyā b. Abi Kathīr; d. 164 (*Tah.*, IV, 628). *Isnād* as at 15, 12.

Abū Ayyūb Khālīd b. Zayd al-Anṣārī—said to have been present at Badr, and taken part with the Prophet and later with 'Alī in the field; 'Urwah related from him; d. c. 50. (*Tah.*, III, 174). According to A. b. H., V, 113-4, Abū Ayyūb quoted the authority of Ubaiy b. Ka'b (date of his death is uncertain, being given as 19, or 32; *Tah.*, I, 350).

In this ḥadīth *Iksāl* requires only wudū' and partial washing; such was the practice of Abū Salmah, according to Abū Dā'ūd (*B. fī'l-Iksāl*). But the majority of the Companions, *Tābi'ūn*, and their successors are opposed and maintain the necessity of complete غسل. The tradition is held to have been abrogated, on the authority of Ubaiy b. Ka'b himself:

... سهيل بن سعد الساعدي أخبرني أن أبي بن كعب أخبرني أن رسول الله
صلى الله عليه وسلم إنما جعل ذلك رخصة للناس في أول الإسلام لقلة الثياب ثم أمر بالغسل
ونهي عن ذلك قال أبو داود يعني الماء من الماء (Abū Dā'ūd, *ib.*)

16, 23-17, 11: Ishāq b. Ibrāhīm b. Suwaid ar-Ramlī (14, 18)—related from the following; d. 254 (*Tah.*, I, 402).

Ayyūb b. Sulaimān b. Bilāl—related from the following; d. 224 (*Tah.*, I, 742).

'Abdu'l-Hamīd b. 'Abdī'l-lāh b. 'Abdī'l-lāh b. Uwais, known as Abū Bakr b. Abī Uwais—related from the following; d. 202 (*Tah.*, VI, 237).

Sulaimān b. Bilāl—related from the following (*see isnād* at 9, 6); d. 177 (*Tah.*, IV, 304).

Abū Mas'ūd 'Uqbah b. 'Amr al-Anṣārī—a Companion; d. c. 40 (*Tah.*, VII, 446; I. Athīr, III, 321).

Abū Bakr b. Md. b. 'Amr b. Ḥazm died c. 120; at 17, 17 'Urwah b. az-Zubair (d. c. 91) is mentioned as Abū Mas'ūd's rawī, and it may be he is the mediary here, in which case the *isnād* would be munqatī'. The tradition is repeated at 17, 11-14, and 14-20; it occurs also in Abū Dā'ūd (باب المواقيت); Tirm. (باب ما جاء في مواقيت الصلوة).

The occasion of Gabriel's coming is thus stated in *al-Maghāzī* of Ibn Ishāq:

... أن ذلك كان صبيحة الليلة التي فرضت فيها الصلاة وهي ليلة الأسراء
(فتح الباری - شرح صحيح البخاري, (II, 3, ed. Būl., 1300 A.H.,

The tradition in the Musnad appears to indicate that Gabriel did not himself pray, and merely instructed the Prophet; but in the tradition of Ibn 'Abbās quoted in Tirm. (*l. c.*) and Abū Dā'ūd (*l. c.*) the Prophet's words are:

أَمَّنِي جِبْرِيلُ عِنْدَ الْبَيْتِ, from which ash-Shāfi'i concludes that it is permissible for *المتنفل* to pray behind *المقترض* (prayer not being incumbent on angels); but the followers of Abū Hanifah hold that Gabriel was under order to pray on this occasion.

حين كان ظل كل شيء مثله—this is the *Madhhab* of Imāms ash-Shāfi'i, Mālik b. Anas, Aḥmad b. Hanbal, and of Md., Abū Yūsuf and Zufar (three pupils of Abū Hanifah), but according to the *madhhab* of Abū Hanifah himself, noontide is up to two *milḥs*, by which time *العصر* sets in: —وقت الظن من زواله (يعني الشمس) إلى بلوغ الظل مثليه—a view which differs from that in the Musnad and of ash-Shāfi'i, etc. (see *الدُرُ المختار* [Brock., II, 311], prtd. on margin of *ردّ المختار* [the latter by Ibn 'Abidin], I, 264, Cairo, 1327.

العشاء الآخرة (*l. 5*)—the *maghrib* prayer is also called *العشاء الأولى*.

حين كان ظل كل شيء مثله (*ll. 6-7*)—opinions are divided as to whether the time of *ظهر* and *عصر* overlap. (*١٧, 8*)—ash-Shāfi'i's view is that there is a restricted time for the Maghrib prayer, *viz.*, after sunset and the due ritual; but Abū Hanifah, Mālik, etc., maintain that the time lasts until the disappearance of the evening glow (*شفق*)—see Tirm., *وقت المغرب*. باب ما جاء في وقت المغرب (*شفق*)—*i.e.* prayer may commence at any time between these two *termini*.

١٧, 11-14: *Isnād* as at ١٦, 23, except that Yaḥyā b. Sa'īd here quotes 'Umar II; cf. ١٧, 17. The meaning assigned to the addition of 'Umar II is that the time of prayer was similarly demarcated for the former Prophets, and not that five daily prayers were enjoined on them (*Mishk.*, F. II, *باب تعجيل الصلوة*).

١٧, 14-20: *Ishāq* b. Ibrāhīm—see at ١٦, 23.

'Abdu'l-Malik b. 'Abdi'l-Hakam—apparently *majhūl*; possibly he is 'Abdu'l-Malik b. al-Hakam (*Lis. Mīz.*, IV, 180.)

'Ayyūb b. 'Utbah, etc., as in *Tah.*, I, 749, where it is stated that he died in 160.

Bashīr b. Abi Mas'ūd, *i.e.*, b. 'Uqbah b. 'Amr (see I v, 1)—it is disputed whether he was born in the time of the Prophet, and he is generally regarded as a *Tābi'ī*; he was quoted by 'Urwah b. az-Zubair (*Tah.*, I, 864).

Al-Hākim Abū 'Abdī'l-lāh al-Hāfiz is said to have distinguished thus between *مثل* and *نحو* :

مما يلزم الحديثي من الضبط والانتقان ان يفرق بين ان يقول مثله او يقول نحوه فلا يعمل له ان يقول مثله الا بعد ان يعلم انهما علي لفظ واحد و يعمل ان يقول نحوه اذا كان علي مثل معانيه
K. *Ulūm ad-Dīn*, by Abū 'Amr Uthmān... Ibn Ṣalāh, 94, Cairo, 1326. *Shibh* indicates some difference in both phraseology and sense.

18, 1-6: Md. b. 'Abdī'l-lāh b. al-Hārith b. Naufal (the last a cousin of the Prophet)—related from Usāmah b. Zayd, and was quoted by 'Umar II (*Tah.*, IX, 410).

Md. b. 'Auf—d. 272 (*Tah.*, IX, 632).

Bishr b. Shu'aib—related from his father, and was quoted by the preceding; d. c. 212 (*Tah.*, I, 827).

Shu'aib b. Abi Ḥamzah—related from az-Zuhri; d. c. 162 (*Tah.*, IV, 588).

Usāmah b. Zayd b. Hārithah—a Companion; his mother was Umm Ayman, nurse of the Prophet (I. Sa'd, VIII, 162); d. c. 54 (*Tah.*, I, 391).

Cf. *sup.*, r, 7; A. b. H., IV, 38²⁴; *Mishk.*, F. I., باب الجلوس والنوم والمشى.

18, 7-14: Abū Burdah b. Abi Mūsā—related from his father (I. 10), and was quoted by Talhah b. Yahyā b. Talhah b. 'Ubaidī'l-lāh; d. c. 104 (*Tah.*, XII, 95).

Ibrāhīm b. 'Abdī'l-lāh b. Hātim—see I., 9.

Yahyā b. Sulaim at-Tā'ifi—related from the following; d. c. 193 (*Tah.*, XI, 366).

'Abdū'l-lāh b. 'Uthmān b. Khuthaim—d. c. 132 (*Tah.*, V, 536).

Talhah b. 'Ubaidī'l-lāh (*Tah.*, V, 35)—the name of this descendant quoted in the Musnad is given in A. b. H. (IV, 410, 16) as Talhah b. Yahyā (b. Talhah b. 'Ubaidī'l-lāh), who died in 148 (*Tah.*, V, 45).

Abū Mūsā 'Abdū'l-lāh b. Qays al-Ash'arī—said to have become a Muslim before the Hijrah, and migrated to Abyssinia; was quoted by his son, Abū Burdah; d. c. 42 (*Tah.*, V, 625).

The *matn* is found in A. b. H. IV, 408¹¹⁻¹³; 410³⁵; 418²²; see also: 391¹¹⁻¹⁵; 398¹⁷; 402¹⁸; 407¹⁶; 410^{1, 17}.

18, 15-20, 14: The tradition is thrice recorded: 18, 16-19, 10; 10-20, 3; 3-14: see also Ibn Mājah, باب ذكر الحوض.

18, 15ff. : Abū Sallām Mamtūr al-Habashī (18, 17) al-Aswad (19, 12; 20, 4)—related from Thaubān (II. 20; 19, 13; 20, 5)—according to Ibn Ma'in and Ibnu'l-Madini: لم يسمع من ثوبان (Tah., X, 514; see also Sami., Ansāb, 154).

Ishāq b. Ibrāhīm—see *sup.*, (19, 23).

Ismā'il b. 'Ayyāsh—d. c. 181: (Tah., I, 584).

Md. b. Muhājir b. Abī Muslim—was quoted by the preceding, and related from the following; d. 170 (Tah., IX, 771); عجاج sometimes appears with the *def. article*, e.g., Tah., V, 204.

Al-'Abbās b. Sālim—related from Abū Sallām al-Aswad (Tah., V, 204).

Thaubān—a captive purchased and liberated by the Prophet, in whose service he remained diligent until the latter's death; d. 54 (Tah., II, 54).

This tradition on the authority of Thaubān is also found in A. b. H., Ibn Mājah, and at-Tirmidhī, the last of whom describes it as غريب (Mishk., F. II., الشفاعة و باب الحوض). المتنععات (19, 8; 18; 20, 12)—elsewhere appears as المتنععات (Mishk., *ib.*), and as المنعمات (Ibn Mājah, الحوض). (باب ذكر الحوض).

أبواب (19, 8) is not found elsewhere, e.g., 19, 18; 20, 14; Mishk., *ib.* In Lane (*Lex.*, see سد), السدد has the meaning of الأبواب, and it is possible the latter word has crept in from some marginal note explaining it.

For الحوض cf. also A. b. H., III, 216¹⁰; 219¹⁸; 220⁸¹, 225¹⁶; 230¹²; 236^{9, 26}; 237, ^{12, 15}; 238¹⁶; V, 390¹⁷, 394²²; 406¹²; Mishk., F. I, الشفاعة و باب الحوض.

For Fāṭimah b. 'Abdī'l-Malik, see *Introd.*, IV.

19, 10-20, 3: Maḥmūd b. Khālīd ad-Dimashqī—d. 249 [Tah., X, 101]. In Ibn Mājah, *l. c.*, the *isnād* is: حدثنا محمود بن خالد etc. الدمشقي ثنا مروان بن محمد ثنا محمد بن مهاجر. (Cf. *sup.* 18, 16)

Suwaid b. 'Abdī'l-'Azīz—generally regarded as ضعيف; d. 194 (Tah., IV, 473).

Abū 'Abdī'l-lāh Shaddād b. Ḥayy (Tah., IV, 540).

20, 3-14: Aḥmad b. al-Faraj—see *sup.*, 2, 5; (Tah., I, 118).

'Uthmān b. Sa'id—related from Md. b. Muhājir; d. 209 (Tah., VII, 254).

'Uthmān b. al-Muhājir—two sons of al-Muhājir are mentioned, محمد and عمرو (Tah., X, 564); the copyist has probably written عثمان, which occurs just before, viz., in محمد بن سعيد. Isnād as at 18, 16.

r., 15-21, 4: Sa'īd b. Khālīd b. 'Amr b. 'Uthmān b. 'Affān (see l. 19)—was quoted by az-Zuhri (*Tah.*, IV, 29).

Yūsuf b. 'Abdī'l-Malik b. Marwān ad-Daḡīqī—his brother was Md. b. 'Abdī'l-Malik (d. 266; Sam., 227 (b); *Tah.*, IX, 525).

Abū Hammām aṣ-Ṣalt b. Md. al-Khārakī (of Khārak, an island off the mouth of the Shāpūr river in the Persian Gulf (Yāq., II, 387; Sam., 184 (b); see Khārīk in Le Strange's *Lands of the East. Caliphate*, 261; d. c. 210 (*Tah.*, IV, 754; *Taq. Tah.*).

'Abdu'l-lāh b. 'Abdīl-'Azīz al-Laythī al-Madanī—related from az-Zuhri (*Tah.*, V, 514). Cf. the *Isnād* at A. b. H., V, 415²², where the following tradition is given on his authority, on Ibn Shihāb az-Zuhri's, on 'Atā' b. Yazīd al-Laythī's (*inf.*, r1, 3; *Tah.*, VII, 398), then on Abū Ayyūb al-Ansārī's (*sup.*, 11, 21.).

r1, 5-12; 15-22, 1; 1-4: For this *matn*, see also *sup.*, 9, 8-9.

r1, 5-12: Mu'ammār b. Sulaimān ar-Raqqī—related from the following; d. 191 (*Tah.*, X, 445).

Zayd b. Hibān—d. 158; the preceding, Mu'ammār b. Sul., said of him: سمعت منه قبل ان يفسد ويتغير (*Tah.*, III, 739).

Md. b. Qays, *qāṣṣ* of 'Umar II (*Tah.*, IX, 677).

Abū Salmah b. 'Abdī'r-Rahmān b. 'Auf—related from his father; see *sup.*, 15, 12.

'Abdu'r Rahmān b. 'Auf—an early convert; one of the ten assured of admission into Paradise (A. b. H., I, 188^{5, 19}); d. 32 (*Tah.*, VI, 490; see also note at *sup.*, 1, 14ff.).

r1, 12-15: Md. b. al-Wazīr b. al-Ḥakam ad-Dimashqī—was quoted by Md. b. Md al-Bāghandī, and related from the following; d. 250 (*Tah.*, IX, 821).

Al-Walīd b. Muslim—related from the following; see *sup.*, 11, 11.

Md. b. Muhājir—see *sup.*, 11, 16.

Opinions differ as to whether the two oversight-prostrations (سجدة السهو) should precede or follow the *Salām*, the movement of the head to right, then left, marking the conclusion of the prayer; (a) that they should follow is the opinion of Sufyān ath-Thawrī and Abū Hanīfah; (b) that they should precede is the view of Yāhyā b. Sa'īd and Rabī'ah, and also of ash-Shāfi'ī; (c) Mālik b. Anas maintains that if the prayer has exceeded in any respect, they should follow; but if there has been any omission, they should precede. Tirm., باب ما جاء في سجدة السهو قبل السلام.

r1, 15ff.: Md. b. al-Husain (الحسن) in *Tah.*, VI, 495) b. Ibrāhīm Abū Ja'far b. Ashkāb—d. 261 (*Tah.*, IX, 166).

Abū 'Alī 'Ubaidu'l-lāh b. 'Abdi'l-Majid al-Hanafī—related from the following ; d. 209 (*Tah.*, VII, 63).

Ibn Abi Dhi'b—see v, 14.

'Abdu'l-'Aziz b. 'Abbās (*Tah.*, VI, 657)—his name is also read as 'Abdu'l-'Aziz b. 'Ayyāsh; he was quoted by the preceding, and related from 'Umar II (rr, 3), and from the following (*Tah.*, VI, 672). For the *matn*, see *sup.*, i, 8, and r1, 10.

rr, 1-4:

Abū Nūh 'Abdu'r-Rahmān b. Ghazwān—d. 187 (*Tah.*, VI, 495).

Isnād as at r1, 16, except for the omission of Md. b. Qays (r1, 16).

rr, 5-11, etc.: The tradition occurs again at rr, 11-16; 16-18; 18-rr, 2.

rr, 5-11: 'Āmir b. Sa'd b. Abi Waqqāṣ (l. 7)—related from Usāmah b. Zayd (*sup.*, e, 11), and was quoted by Md. b. al-Munkadir; d. c. 104 (*Tah.*, V, 106).

Md. b. Zunbūr al-Abṭahī—*sup.*, 13, 9.

'Abdu'l-'Aziz b. Abi Hāzim—*sup.*, 13, 9.

Md. b. al-Munkadir—d. c. 130 (*Tah.*, IX, 767).

Isnād and *matn* are similar in A. b. H., V, 201¹; 202¹; 206²; 207³; 208³; 209³, 210⁵; for the *matn*, see also: A. b. H., I, 192⁵; 193²⁰; 194^{12, 17, 21}; *ib.* IV, 177³.

rr, 11-16: Ibrāhīm b. 'Abdi'l-lāh b. Md. Abi Shaybah—related from the following; d. 265 (*Tah.*, I, 242).

'Umar b. Hafs. b. Ghiyāth—related from his father; d. 222 (*Tah.*, VII, 713).

Hafs. b. Ghiyāth—related from the following; d. c. 194 (*Tah.*, II, 725).

Sulaimān b. Abi Sulaimān, ash-Shaybānī—d. c. 130 (*Tah.*, IV, 334).

Riyāh b. 'Abidah—a companion of 'Umar II (*Tah.*, III, 562); in the *Iqdu'l-Farid* (II, 244²⁵, ed. Eg., 1317), he relates an incident illustrating from his purchase of apparel for Umar II. the change in the latter's conduct after his accession.

'Āmir b. Sa'd b. Abi Waqqāṣ Mālik—*isnād* as at rr, 7. Sa'd b. Abi Waqqāṣ Mālik—an early convert; he was present in all the Prophet's military engagements; d. c. 51 (*Tah.*, III, 901).

rr, 16-18: Habīb b. Abi Thābit—was quoted by ash-Shaybānī, and related from the following; d. c. 119 (*Tah.*, II, 323); this *isnād* occurs in A. b. H., V, 210⁴.

Ibrāhīm b. Sa'd b. Abi Waqqāṣ—related from his father (*sup.*, l. 13; *Tah.*, I, 217).

rr, 18ff. *Isnād* begins as at rr, 11, 16.

Abū Bakr 'Abdu'l-lāh b. Hafs. b. 'Umar (*Tah.*, V, 324)

rr, 2-9: Abū Mūsā Md. b. al-Muthannā—related from the following; d. c. 250 (*Tah.*, IX, 696).

'Uthmān b. 'Umar b. Fāris—related from the following: d. c. 209 (*Tah.*, VII, 290).

Fulaih b. Sulaimān—d. 168 (*Tah.*, VIII, 551; *Tab. Huf.*, V, 51).

'Abdu'l-lāh b. 'Abdī'r-Rahmān—or more correctly, according to *Tah.* (V, 498), 'Abdu'l-lāh b. Ja'far b. 'Abdī'r-Rahmān—related from the following, his paternal uncle; d. c. 170 (*Tah.*, V, 295).

For a similar tradition on the authority of 'Ā'ishah, see A. b. H., VI, 105¹⁸; and for the importance of dates as an article of diet. *ib.*, 16¹⁶.

rr, 10-15; al-Qāsim—d. between 150 and 160 (*Tah.*, VIII, 578); his brother, 'Abdu'r-Rahmān, related from their father, 'Abdu'l-lāh b. 'Amr (the latter name thus given also in Naw., 505, but as عمر in *Tah.*, V, 564; *Tab. Huf.*, V, 1), who died c. 171, or 147 (*Tab. Huf.*, V, 1).

Abū Sa'id 'Abdu'r-Rahmān b. Ibrāhīm ad-Dimashqi, known as Duḥaim—related from both the following; d. 245 (*Tah.*, VI, 274).

Md. b. Shu'aib b. Shābūr—d. c. 200 (*Tah.*, IX, 349).

'Umar b. Yazīd al-Baṣrī—d. c. 240 (*Tah.*, VII, 843).

'Amr b. Muhājir (al-Muhājir in *Tah.*, VIII, 176; cf. *ib.* Md. b. Muhājir, brother of 'Amr)—related from 'Umar II, whose chief of military police (شرطة) he was; d. 139.

There is unanimity in regarding al-Qāsim b. 'Abdī'l-lāh as unsafe; some traditionists reject him altogether. The *isnād* is here مرسل, and perhaps garbled.

“The community (أمة) is the organisation of salvation, outside which none may hope to be saved; the only sin which is requited with hell is that which, according to the *ijmā'* of all believers, assuredly dissolves communion with the church of Islām, viz., *shirk*” (T. Andrae, *Die Person Muhammeds*, 242; in this connection see Muslim:—

باب من مات لا يشرى بالله شيئا دخل الجنة. *Shirk* is the only sin which is punished with eternal torment. The heinous nature of the offence is the cause of the ruin of communities and peoples in this world, according to the tradition in the Musnad. For التّكذيب بالقدر (l. 15), see A. b. H., II, 181²⁹⁻³¹.

rr, 16-rr, 2; 2-7; 17-20: This *athar* of Abū Bakr is thrice repeated, on the authority of aṣ-Ṣunābihi.

rr, 16ff. Qays b. al-Hārith—qādi of 'Umar II; related from the following (*Tah.*, VIII, 688); his name occurs in the

second *riwāyah* (r^c, 2-7), which is supported by the first (r^c, 18ff).

‘Abdu’r-Raḥmān b. ‘Usailah aṣ-Ṣunābiḥi—was quoted by Maḥmūd b. Labīd al-Anṣārī (l. 19); it is said that he went to see the Prophet, but did not arrive till a few days after his decease; d. between 70 and 80 A.H. (*Tah.*, VI, 465).

Md. b. Wazīr—*sup.*, r^l, 12.

al-Walīd b. Muslim—*sup.*, r^c, 11; r^l, 12.

‘Abdu’r-Raḥmān b. Yazīd b. Jābir—was quoted by the preceding; d. c. 154 (*Tah.*, VI, 578).

Yahyā b. Yahyā al-Ghassānī—appointed qāḍī of Mausiḥ by ‘Umar II; was quoted by Ibn Jābir, and related from the following; d. c. 135 (*Tah.*, XI, 579).

Maḥmūd b. Labīd al-Anṣārī—born shortly before the Prophet’s death; d. c. 96 (*Tah.*, X, 110).

المفصل (l. 21)—the concluding chapters of the Qur’ān, beginning from Sūrah XLIX,—but see Lane (Lex., s. فصل).
قصار المفصل—extends from the 98th. but according to others, from the 93rd. Sūrah to the end of the Qur’ān.

See also the *riwāyah* in A. b. H., III, 183⁴, which, as here, opens the *qir’ah* with: الحمد لله آخ; according to ash-Shāfi’ī it opens with the “*Bismillah*, etc.” (Tirm., باب في افتتاح القراءة...).

r^c, 2-7: Abū ‘Amr—possibly ‘Abdu’r-Raḥmān b. ‘Amr al-Auzā’ī, who was quoted by al-Walīd by Muslim (*Tah.*, XI, 254); a senior contemporary of Mālik b. Anas; d. c. 157 (*Tah.*, VI, 484).

Abū ‘Ubaid, ḥājib of Sulaimān b. ‘Abdīl-Malik (*Tab.*, III, 2424 n. h.)—was quoted by Mālik, and related from Qays b. al-Hārith (*Tah.*, XII, 755).

‘Ubādah b. Nusiay—d. 118 (*Tah.*, V, 193).

r^c, 8-20: [Md. b.] Md. b. Marzūq b. Bukair b. al-Buhlūl al-Bahilī—related from Md. b. Bakr; d. 248 (*Tah.*, IX, 704).

Md. b. Ma‘mar—probably al-Bahrānī; related from Md. b. Bakr; d. after 250 (*Tah.*, IX, 753).

Md. b. Bakr al-Bursānī—related from the following; d. 204 (*Tah.*, IX, 96).

‘Abdu’l-Hamīd b. Ja‘far al-Anṣārī—related from the following; d. 153 (*Tah.*, VI, 223).

Al-Aswad b. al-‘Alā’—related from the following (*Tah.*, I, 621).

From A. b. H., IV, 113²⁰, it appears that the *marwā* was Huwayy Abū ‘Ubaid (*sup.*, r^c, 3); it is possible that the

person anonymously referred to as رجل was Qays b. al-Ḥārith (r^r, 16).

'Amr b. 'Abasah—was quoted by as-Ṣunābiḥī; an early convert; died in the Khilāfat of 'Uthmān (*Tah.*, VIII, 107); a collection of his traditions is found in A. b. H., IV, 385-7.

The *isnād* and the first tradition are as at A. b. H., IV, 113¹⁹⁻²⁴; see also *ib.*, 386⁴⁻⁸, 29-30. For the second tradition, see *sup.*, r^r, 20ff.

r^o, 1-11: Abū Bakr (b.) Md. b. 'Amr b. Ḥazm—see *sup.*, 9, 6, and for his name *Tah.*, XII, 154.

Ismā'il b. Abī Uwais—related from the following; see *sup.*, 1^r, 18; *Tah.*, I, 568.

Sulaimān b. Bilāl—d. c. 177 (*Tah.*, IV, 304).

Usāmah b. Zayd b. Aslam—related from his father (*Tah.*, III, 728; d. 136), from whom Sulaimān b. Bilāl also related; Usāmah died in the reign of al-Manṣūr (r. 136-158)—*Tah.*, I, 390.

'Amrah bint 'Abdī'r-Raḥmān (l. 8)—maternal aunt of Abū Bakr b. Md. b. 'Amr b. Ḥazm (r^o, 1); related from 'Ā'ishah; d. c. 100 (Ibn Sa'd, VIII, 353; *Tah.*, XII, 2851). 'Ā'ishah's quotation (و قالوا ... شركاء) is the Qur'ānic verse, VI, 140.

r^o, 12-17:

'Abdu'l-'Azīz b. 'Abdī'l-lāh al-Uwaisī (*Tah.*, VI, 662).

Md. b. Ṣāliḥ al-Azraq (the *kunya* Ibn Abī Qays is not given by Ibn Ḥajar)—was quoted by the preceding, and related from the following (*Tah.*, IX, 358).

Ṣāliḥ b. Md. b. Zā'idah—see *sup.*, r, 8, for *isnād* and *matn*; here, however, it is added that the Prophet uttered the words three times. The following sentence, from الذين إلى الذین is unhistorical and *mudraj*; the Prophet did not have an encounter with the Byzantines (on Tabūk, 9 A.H., see Caetani, *Annali*, II, 1, 252 ff.; Huart, *Hist. d. Ar.*, I, 177).

r^o, 18ff.: 'Abdu'l-lāh b. Mawhib—appointed by 'Umar II as qādī of Palestine; related from Qabīṣah b. Dhu'aib (r¹, 1) [*Tah.*, VI, 87].

Hishām b. 'Ammār ad-Dimashqī—was quoted by Abū Bakr al-Bāghandī; d. 245 (*Tah.*, XI, 90).

Yahyā b. Ḥamzah—d. 183; quoted by Hishām (*Tah.*, XI, 339).

'Abdu'l-'Azīz b. 'Umar b. 'Abdī'l-'Azīz—was quoted by the preceding and related from his father, 'Umar II, and 'Abdu'l-lāh b. Mawhib; d. c. 147 (*Tah.*, VI, 670).

Qabīṣah b. Dhu'aib—related from Tamīmu'd-Dārī (*sup.*, r, 4); d. c. 87 (*Tah.*, VIII, 628); 86 (I. Athīr, IV, 417);

he protested against the removal of the Prophet's *minbar* by 'Abdu'l-Malik b. Marwān (*ib.*, III, 385).

For the *isnād* and *matn*. see A. b. H., IV, 102^{22 25}; 103^{2-4, 14-16}.

rv, 6-16: 'Ubaidu'l-lāh b. 'Abdi'l-lāh b. 'Utbah—d. c. 102; see Introd., IV; *Tah.*, VII, 50.

Ja'far b. 'Aun—related from the following; d. c. 206 *Tah.*, II, 153).

Abu'l-'Umais 'Utbah b. 'Abdi'l-lāh (*Tah.*, VII, 207).

Abū Bakr b. 'Abdi'l-lāh b. Abi'l-Jahm—was quoted by the preceding, and related from 'Ubaidu'l-lāh b. 'Utbah (*Tah.*, XII, 135).

Al-Walid b. 'Abdi'l-Malik—Umayyad Khalīfah from 86-96 (Introd., IV).

'Abdu'l-lāh b. 'Abbās b. 'Abdi'l-Muṭṭalib—see Introd., II, chronl. table, for his relation to the Prophet; was quoted by 'Ubaidu'l-lāh b. 'Utbah; d. c. 68 (*Tah.*, V, 474).

There has been a gross oversight on the part of the copyist, as the text is unintelligible as it stands. The circumstances connected with the *Ṣalātu'l-khawf* have been variously related; Abū Dā'ūd has been particularly industrious in collecting references, and quotes Abū Hurairah to the effect that the incident occurred during the year of the raid on Najd, and another authority to the effect that it took place on the day of ذات الرقاع; see his:—

باب من قال اذا صلى ركعة وثبت قائما ; باب من يكبرون جميعا ; باب من قال يصلى بكل طائفة ركعة ولا يقضون ;

also A. b. H., II, 320¹¹⁻²².

rv, 17ff.: 'Abdu'l-lāh b. Ibrāhīm b. Qāriḏ—*sup.*, v, 2; the *isnād* is exactly as at v, 6-13, while the *riwāyah* shows only minute differences.

الموسومة or الموشومة (l. 5) is almost certainly a clerical error, and the original probably had المستوشمة or المستوشرة—see *sup.*, v, 13.

rv, 6: Ar-Rabi' (probably b. Sulaimān, as at r, 10).

Shu'aib b. Yahyā—d. c. 211 (*Tah.*, IV, 599). *Isnād* as at rv, 19.

rv, 6-11: *Isnād* exactly as at v, 1-6: the *matn* agrees almost verbatim; see further the note on v, 5-8, etc.

rv, 12-18: 'Abdu'l-lāh b. Aḥmad ad-Dauraqī—quoted from Yahyā b. Ma'in (d. 233; *Tah.*, XI, 561). He is presumably Abū'l-'Abbās 'Abdu'l-lāh b. Aḥmad (d. 276) mentioned by Sam. (231).

'Abdu'l-lāh b. Md. al-'Adawī—in his *K. ad-Du'afā'* (Brock., *Ges. d. Ar. Lit.*, I, 518) Md. b. 'Amr al-'Uqaili

refers to him, and gives this *isnād* and *matn*, but the first part, which he calls غير محفوظ, in the form: لا تقبل صلاة غير محفوظ ما انزل الله—and the second part, which he calls معروف, thus: ولا تقبل صلاة بغير ظهور ولا صدقة من غلول.

He adds that the generality of its *rāwīs* are *majhūl* (*Tah.*, VI, 28).

Talhah b. 'Ubaidi'l-lāh—*sup.*, I, 9.

For the *matn*, see also A. b. H., II, 20².

rv, 18ff: Isnād exactly as at ll. 13-15.

ra, 6-10: Md. b. Muslim az-Zuhri—see *sup.*, I, 17.

Ibrāhīm b. 'Abdī'l-'Azīz—possibly mentioned in *Tah.*, I, 253.

'Alī b. 'Ayyāsh—d. c. 218 (*Tah.*, VII, 597), may be intended.

'Abbād b. Kathīr—d. between 140 and 150 (*Tah.*, V, 169); but cf. 'Abbād b. Kathīr ar-Ramlī (*Tah.*, V, 170), who may be here intended.

ra, 11-15: Ar-Rabī' b. Sabrah—related from his father, and was quoted by 'Umar II (*Tah.*, III, 471).

Sabrah b. Ma'bad—a Companion; d. in khilāfat of Mu'āwiyah (r. 41-60; *Tah.*, III, 847).

Wahb b. Jarīr—related from his father; d. 206 (*Tah.*, XI, 273).

Jarīr b. Hāzim—related from Md. b. Ishāq; d. 175 (*Tah.*, II, 111).

Md. b. Ishāq b. Yasār—was quoted by the preceding, and related from az-Zuhri; d. c. 150 (*Tah.*, IX, 51).

Isnād and *matn* in A. b. H., III, 404¹⁵⁻¹⁶, see also *ib.*, ll. 17-18; 28; 29; 405²⁷.

ra, 15-19: 'Umar b. Ya'qub, etc.—see *sup.*, I, 18.

al-Hasan b. Md. b. A'yan—related from the following; d. 210 (*Tah.*, II, 550).

Ma'qal b. 'Ubaidi'l-lāh—related from the following; d. 166 (*Tah.*, X, 427).

Ibrāhīm b. Abī 'Ablah—related from 'Umar II (*Tah.*, VII, 790); d. c. 151 (*Tah.*, I, 255).

ra, 19ff: 'Isā b. Yūnus ar-Ramlī—d. 264 (*Tah.*, VIII, pp. 236-7, *f. n.*).

Ayyūb b. Suwaid—related from the following; d. c. 202 (*Tah.*, I, 745).

Yūnus b. Yazīd—related from az-Zuhri; d. 159 (*Tah.*, XI, 869).

ra, 6-30, 2: 'Abdu'l-lāh b. Salmah b. Aslam—regarded as *ḍa'īf* by ad-Dāraquṭnī, etc. (*Lis. Mīz.*, III, 1233).

Marwān b. al-Hakam—born two years after the Prophet's emigration to Madinah; d. 65 (*Tah.*, X, 166; *Intro.*, II).

Hind bint 'Utbah b. Rabī'ah—mother of Mu'āwiyah; for her former marriage with al-Fākih b. al-Mughīrah, see *Tar. Khul.*, Khilāfat of Mu'āwiyah b. Abī Sufyān; for her mutilation of Ḥamzah and others (r. 12), see Ibn Hishām, 580; she accepted Islām in the year of the conquest of Makkah (see 30, 2; *al-Isābah*, IV, p. 820).

هَبَل (r. 16), ساف (*ib.*)—two well-known idols.

30, 3-14: Md. b. Thābit b. Shurahbīl—related from 'Abdu'l-lāh b. Yazid b. Zayd al-Khaṭmī; in *Tah.*, IX, 106 it is stated:

روى عبد الله بن أبي بكر بن حزم أن عمر بن عبد العزيز كتب إلى
أبيه أبي بكر بن حزم أن سل محمد بن ثابت عن حديثه فإنه رضى
(see Musnad, 30, 8)

Al-Husain b. Md. b. Shākir as-Samarqandī—related from the following,

Md. b. Yūsuf, who related from Abu Qurrah (*Tah.*, IX, 882).

Abū Qurrah Mūsā b. Ṭāriq—related from the following (*Tah.*, X, 624).

Zam'ah b. Ṣālih (*Tah.*, III, 629).

'Abdu'l-lāh b. Yazid b. Zayd al-Khaṭmī—governor of Kūfah; was present with 'Alī at al-Jamal and Ṣiffin; related from Abū Ayyūb al-Anṣārī (*sup.*, 16, 21; *Tah.*, VI, 155).

For the *matn*, see A. b. H., II, 174³⁻⁴; VI, 63¹⁸⁻²⁰.

30, 15-20: 'Irāk b. Mālik—related from 'Ā'ishah; d. between 101 and 105 (*Tah.*, VII, 339).

Ja'far b. Abī 'Uthmān—probably identical with Ja'far b. Md. at-Ṭayālīsī, *rāwī* of Yahyā b. Ma'in (d. 233; *Tah.*, XI, 561).

'Abdu'l-Wahhāb b. 'Abdi'l-Majid ath-Thaqafī—related from the following: d. 194 (*Tah.*, VI, 934).

Khālid b. Mihrān al-Ḥadhhdhā'—d. c. 141 (*Tah.*, III, 224; *Tab. Huf.*, IV, 45).

Ash-Shāfi'ī holds that neither استقبل nor استدبار is permissible in the open, but the former is in a privy; Aḥmad b. Hanbal maintains that the former is never permissible, but استدبار is in any circumstances; Abū Hanīfah holds that neither is possible (Tirm., باب في نهي عن استقبال القبلة بغائط). See also Ibn Mājah (رخصة في استقبال القبلة عند الحاجة); 'Umdatul-Qāri', I, 705 (ed. Const., 1308).

Notes on Archæological Remains in Bengal.

By MAULAVI 'ABDU'L WALI *Khān Sahib*.

Less than a decade ago, I published certain notes on Muslim archæological remains in Bengal in the *Journal* and *Proceedings* of this Society as well as in other *Journals*.¹ Owing to ill-health and other causes, I regret I could not continue those notes till now, for which I ask the indulgence of the members. These notes are of great interest for future historians and compilers of District Gazetteers and Statistical Accounts. Through the apathy of the Muḥammadan public, want of funds, and other causes, some of these buildings are in the last stages of decay. In certain cases their ownership has been transferred to non-Musalman hands.

BURDWAN.

In his letter dated the 21st April, 1918, Mr. H. Beveridge, I.C.S. (Red.), the learned translator of the *Ākbar-nāma*, writing to me from Pitford, Shottonhill, Haslemere (England), said :

I have been interested in your paper on the "Antiquities of Burdwan" in the A.S.B. *Journal*. Will you permit me to point out that Shāh Bardi Biyāt, or Bahrām Saqqā was the elder brother of Bāyazid Biyāt who wrote his memoirs, and whose book was described by me in an article in A.S.B.J. published in 1898 or 1899. Bāyazid refers to his brother in his book, and mentions some facts about him.

With regard to my account of Nūr Jahān and Shir Āfgan, Mr. Beveridge also in the same letter refers to Jahāngīr's *Memoirs* and Haydar Malik's history of Kashmīr, and other books. I am deeply obliged to him for his letter; but I need only mention

¹ The following papers have been published :—

- A. *In the Journal and Proceedings of the Asiatic Society for 1917.*
 - (1) 'Alam Khān's mosque at Katwa.
 - (2) Madāran and Mubārak Manzil, in the district of Hugli.
 - (3) The Tōpkhāna Mosque at Santipūr.
 - (4) The Antiquities of Burdwan.
- B. *In the Journal of the Bihar and Orissa Research Society for 1917.*
 - (5) Antiquities of Mangalkōt.
- C. *In "Bengal : Past and Present" (Journal of the Calcutta Historical Society, Vol. XIV, Part I, Serial No. 27, January-March, 1917).*
 - (6) Antiquities of Kālāna. (An abstract of this paper was published in the *Proceedings* of A.S.B. for 1917, page II.)
 - (7) The Antiquities and Traditions of Paṇḍua in the district of Hugli.

below the relevant and little known facts, *first* with regard to Bahrām Saqqā, and *secondly* with reference to Qutbu'd-Dīn Khān, Shir-Afgan, and Nūr-Jahān which were left out in my previous paper published in the Journal and Proceedings of this Society for 1917.

According to Mr. Beveridge's paper in the Journal of the Asiatic Society of Bengal, Vol. LXVII, Part I, 1898, pp. 296—316, the Memoirs of Bāyazīd Biyāt, which he wrote for Akbar in 1590-91, is still in manuscript. Bāyazīd was the younger brother of Shāh Bardi Biyāt, otherwise called Bahrām Saqqā. The latter forsook the profession of arms and became a water-carrier. Bāyazīd joined his brother, who was in Gurdiz—65 miles S.E. of Kābul—in the service of Mirza Kāmran. Kāmran took Gurdiz, Naghāz and Bangash from Shāh Bardi and gave them to Khizr Khān Hazāra. Shāh Bardi received in exchange the districts of Ghūrband, N.-W. Kābul, Zohak and Bāmiyān, but was requested to put off his journey to Ghūrband till the affairs of the army had been settled. So Shāh Bardi and Bāyazīd stayed at Kābul till Kāmran had reviewed his troops, and till the arrival of Humāyūn. This was followed by the desertion of all Kāmran's officers, including Shāh Bardi, who joined Humāyūn, along with the famous Bāpūs Beg and Bāyazīd. Humāyūn entered Kābul on the 10th Ramādān, 952 H. (16th Nov., 1545 A.D.). In March of 1546 young Akbar was circumcised at Qandahār, the occasion being celebrated with illuminations and other festivities. It was on the occasion of this *ainbandi* or festival that Bardi Biyāt came under a spell (*Jazba rasida*) or religious frenzy, gave up his profession of a soldier and became saqqā or water-distributor under the name of Bahrām Saqqā. Bāyazīd adds that Bahrām Saqqā composed a Diwān (collection of poems) which has been acceptable to all, both the elect and the general public, and that he went off to Turkistān, reciting or making a rosary (*tasbiḥ namūda*) of the Persian Diwān of Shāh Qāsim-i-Anwār and the Turki Diwān of Shāh Nasimi. At Agra Bahrām Saqqā put up a Saqqā-Khāna (water-house) under a *nīm* tree, on the ground of his brother, Bāyazīd. Darvish Nazir, one of Saqqā's disciples, put up a Saqqā-Khāna at the Fort Gate, and when Akbar rode out he used to take a drink, and also used to listen to verses from Saqqā's Diwān.

The above is the very valuable first-hand information regarding the name and career of Bahrām Saqqā, handed down to us by his brother, Bāyazīd Biyāt. Saqqā was accused of being a *rāfiḍī*. In refutation he composed a very fine *tar-ḥiband*, which I have already noticed. Faiḍī and Abu'l-Faḍl were jealous of him. The most valuable information, which the saint's brother supplies, gives us some clue to his esoteric doctrine. Bāyazīd Biyāt says that Bahrām Saqqā went to Turkistān, reciting or "making a rosary" of the Persian Diwān

of *Shāh Qāsim-i-Anwār* and the *Turkī Diwān* of *Shāh Nasīmī*. I should think *Saqqā* carried with him, as one carries a rosary, both those collections of poems and recited therefrom. It is believed that *Nasīmī* was a heretic in the garb of a *Sufi*, and *Qasimu'l-Anwār* was probably of the same tenet. *Nasīmī* whose name was 'Imādu'd-Dīn was put to death in 820 H. (1417-18 A.D.) in consequence of some verses which the 'Ulamā pronounced to be arrant blasphemy.¹ *Qāsimu'l-Anwār* was suspected of attempting the life of *Shāh Rukh* in 830 H. and was banished. "There is," writes Professor E. G. Browne, "good reason to suspect that *Qāsimu'l-Anwār* was at any rate something of an antinomian" even if he had not the same political view as the *Šafavis*, or subscribed to the doctrine of the irreconcilable *Harūfī* heretics to which *Nasīmī* belonged.² Was our good *Pir Bāhrām Saqqā* of the same belief? I think

¹ According to Mr. Gibb, *Nasīmī*, and his disciple, *Refī'i*, were two of the Turkish *Harūfī* poets and were, therefore, heretics. There exists a Persian *Diwān* of ghazals by *Nasīmī*. I saw a fine copy of it in the Buhār Library, No. 373, written in 1016 H (1607 A.D.). The *Diwān* begins with:—

ساقیا آمد بجوش از شوق لعلت جان ما

خضر مائی می بیار از چشمه حیوان ما

Is this *Diwān* by the same *Nasīmī*? I found the verses to be of very superior kind, of *Šūfistic* theme. It seems the author of this Persian *Diwān* flourished about the 9th Century, H.*

* [After the above was in type I read once more Gibb's "History of the Ottoman poetry." According to Gibb and Browne (Persian Literature under Tartar Dominion) *Nasīmī* was bilingual and his *Diwān* includes a Persian as well as Turkish section—both printed in 1881 at Constantinople. *Nasīmī* according to Gibb was probably of Turkoman extraction.

Gibb in Vol. I Chapter VII of his "History" writes:—"Latifi distinctly says that what led to his (*Nasīmī*'s) condemnation was the following verse:—

Mansūr declared 'I am Truth,' His words were truth, 'twas truth he spake;

Nor aught of dole was in his doom, by aliens on the gibbet hanged.

"If this was so, it is clear that at any rate the avowed reason of the poet's accusation was not his connection with the *Harūfī* heretics, but unlawful proclamation of a well-known and widely spread *sufi* tenet.

"For many a year, even to the present day, the poet has been looked upon as a saint and a martyr by thousands of his countrymen, who have never so as heard of the name of *Harūfī*."

The following translation of one of *Nasīmī*'s *Rubā'is* (No. 64) is taken from Gibb:—

Verily, the Truth in every thing I see;

Lose not thou the Truth unless no thing thou be,

Whoso knoweth not the Truth, a rebel he.

Come, for lo, the flood hath swept thy barge from thee.]

² *Vide* Professor E. G. Browne's "Persian Literature under Tatar Dominion," (1920), p. 475.

not. Saqqā found some good esoteric doctrine in their verses which he liked to recite, but did not subscribe to their heretical doctrine—if there was any such therein.

The following account by Mullā ‘Abdu’l-Qādir Badāyuni about Bahrām Saqqā is of additional interest ¹:— He was one of the disciples of Shaykh Hājī Muḥammad Khabūshānī, and was never without rapture (*Jazba*). He, with a few pupils, constantly distributed water to people in the streets of Āgra, and in that state he would refresh his tongue with brilliant verses...he then set forth on foot, alone for Ceylon (Sīlān), and on the way to Ceylon the torrent of annihilation swept away the chattels of his existence.²...He collected several *diwāns* of his poems, and whenever he was overcome by ecstasy, he would wash them one by one, but the remains of his poems form a large volume.

I have given the tradition about Nūr Jahān’s rescue, after Shir Afgan’s death. Jahāngir’s Memoirs (Tuzuk-i-Jahāngirī) as printed by Sayyad Ahmad³ and translated by Alexander

Qutbu’d-Dīn Khān,
Shir-Afgan, and Nūr
Jahān.

Rogers⁴ give a pretty long account of the tragic death of Qutbu’d-Dīn and Shir Afgan. The following is a brief abstract of the main facts:—On the 3rd Šafar (30th May, 1607) ‘Alī Qulī Istajlū, otherwise called Shir Afgan, wounded Qutbu’d-Dīn at Burdwan. After his accession to the throne, Jahāngir ordered a jagir for Shir Afgan at Burdwan, in Bengal. Having received certain news that it was not right to have such a man there, the Viceroy, Qutbu’d-Dīn Khān, was directed to send him to court, or to punish him if he showed any seditious designs. On receipt of the order, Qutbu’d-Dīn immediately proceeded to Burdwan. When Shir Afgan entered the Viceroy’s Camp, the latter’s men surrounded him. This gave rise to suspicion in Shir Afgan’s mind, and he remonstrated against the proceeding. The Khān leaving his men alone, came up to him to explain the purport of the Imperial order. Seeing his opportunity, Shir Afgan drew his sword and inflicted severe wounds upon Qutbu’d-Dīn Khān. Āmbā Khān Kashmīrī, a scion

Āmbā Khān Kash-
mīrī.

of the rulers of Kashmīr, who was related to the Viceroy, rushed forward and inflicted a heavy blow on ‘Alī Qulī’s head. The latter too returned a severe blow on Āmbā Khān, with the result, that while Shir Afgan was cut to pieces, all three died—Qutbu’d-Dīn Khān as a result of his good faith; ‘Alī Qulī

¹ Vide Muntakhabu’t-Tawārikh, B.I. Edn.

² His death at Burdwan has been already noticed in J.A.S.B. for 1917.

³ The Tuzuki-Jahangiri (Persian text). Edited by Syud Ahmud, Ally Gurh, 1864, pp. 54-55.

⁴ Tuzuk-i-Jahangiri, or Memoirs of Jahāngir (from the first to the twelfth year of his reign). Translated by Alexander Rogers, I.C.S. (retired). Oriental Translation Fund, Vol. XIX, London, 1909.

Istajlū by his rashness; and Āmba Khān Kashmīrī owing to his dauntless bravery. The cause of Jahāngīr's suspicion and order regarding Shīr Afgan has never been explained.

We learn from Haydar Malik's History of Kashmīr¹ that he was personally engaged with Shīr Afgan in the attack, in which the latter succumbed, in 1066 H. Having with his brother, 'Alī Malik, protected that Āmir's (Shīr Afgan's) widow, Mihr'un-Nisā Begam (afterward Nūr Jahān), against all dangers, he was warmly recommended by her to Jahāngīr, who bestowed upon him the title of Chaghtāi and Raisu'l-Mulk with the Government of Kashmīr. This account might be read with the tradition I have already noted.

In my previous paper on the "Antiquities of Burdwan," the first Inscription in Bahrām Saqqā's *āstāna* was distinguished in two parts as (A) and (B). To my great surprise, I found the Inscription noted in Saqqā's Diwān, in the Asiatic Society of Bengal's manuscript O (a) 363. The scribe did not see that a verse by *Fathī* could not be by Saqqā whose obituary it notes. A certain word in hemistich 3 (B) marked with (?) is, to my great joy, correctly put down in the above Diwān as گور. This hemistich with the two important variants overlined is given, with the modified translation, below.

در نهصد و هفتاد چو رفت از عالم

در کشور گور

In nine hundred and seventy, when he went away from the world;

In the country of Gaur.²

In hemistich 1 (B) read *guile* for *excuse*.

In the previous article, I published extracts from a tarjī'band from Saqqā's Diwān which was incomplete. The whole poem in ten *stanzas* is now published below, from the above Manuscript of the Asiatic Society of Bengal. From it we get a glimpse into the saint's esoteric doctrine. In this poem Saqqā refutes the baseless charge that he was a *rāfiḍī*. This beautiful poem shows that he could, sometime, write not only with sobriety, but with reason and beauty. In stanza 7 Saqqā stoutly proclaims the doctrine of unity of Him with whom rests the Universe. In the last stanza Saqqā expresses his desire to quit the world before he is ill-treated.

¹ History of Kashmīr from the earliest times to its conquest by Akbar, by Haydar Malik, son of Hasan Malik—*Catalogue of the Persian Manuscripts in the British Museum* by Charles Rieu, Vol. I, p. 297.

² Country of Gaur (or کشور بنگاله Kishwar-i-Bangāla) is equivalent to Bengal.

ترجیع بدن از بهرام سقا

(۱)

ای بیخبر از حقیقتِ کار دیگر بخدا مکن تو انکار
 دریاب که غیر حق به تحقیق در ملک وجود نیست دیار
 در خلوتِ دل انیسِ ما کیست از روی یقین بغیر دلدار
 مارا هوس و هوای باطل افکنده جدا ز وصلِ آن یار
 خواهی که شوی بیارِ واصل پندار خودی ز خویش بر دار
 تا سوی رسول و آل و اصحاب یابی بیقین رمی چو ابرار
 باید که چو رافضی نباشی ملعون حق و حق از تو بیزار
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۲)

اصحاب که مظهرِ الهند در کشورِ حق چو بادشاهند
 هر یک شه صورتند و معنی خود طیب و طاهر از گناهند
 هر یک بمقام ما سوی الله بر وحدتِ ذات حق گواهند
 قومی که کنند رفضِ ایشان در نزد خدای رومیانند
 در حق صحابه بد نگویند انها که بشرع رو براهند
 یاران گل گلشنِ رسولند باقی همه خلق چون گیاهند
 ما و تو بدیم ورنه ایشان با خلق خدای نیک خواهند
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۳)

آن افضلِ کاملان آگاه و آن مددِ مقربان درگاه
 و آن جای نشینِ شاه لولای و آن عارفِ سرّی مع الله
 صدیق که ثانیِ نبی بود از صدق دلیل شد درین راه

نه نشست بمسندِ خلافت تا ترک نکرد حشمت و جاه
 بوی نفسش که مشکِ چین بود صبحی که ز عشق میرد آواه
 زان بوی که بود اهلِ دل را آمد بمشامِ جان سحر گاه
 گمراه بود کسی که دانیم چون من نبود گدای آن شاه
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۴)
 ان عادلِ خسروانِ کامل در کشورِ دینِ امامِ عادل
 ان رونقِ دین (و) ماحیِ کفر ان راهِ نمایی حق و باطل
 یعنی عمرآن امیر بر حق کو بود بفقر و فاقه مایل
 از دشمنِ دین نداشت باکی زانو که بدوست بود واصل
 بر وفقِ مرادِ اوست از حق آیاتِ مبینات نازل
 از قوتِ دین و فتحِ اسلام بگرفت تمام کشورِ دل
 هرکس که نگشت پیرو او مقصود ازل نکرد حاصل
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۵)
 ان جامعِ سوره‌های قرآن کشفِ تمام سرِّ فرقان
 ان مخزنِ حلم و معدنِ علم وان بحرِ حیا و کانِ ایمان
 عثمان که ز روی معرفت داشت نورِ مه و مهر در دل و جان
 از پر تو آفتابِ توحید یکرهٔ نمانده اش ز پنهان
 بنگر که چگونه دست دادش این دولتِ سرمدی زیاران
 فرمود رسول وقتِ بیعت کین دستِ منست دستِ عثمان
 از دیدهٔ معرفت نظر کن در آینهٔ روی کیست پنهان
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۶)

ان شیر خدا که بود صفدر
از قوتِ بازوی ولایت
دنامد و پسر عم پیمبر
بر کند سر او عمرو عتتر
یعنی که علی عالی القدر
کو بود بحق همیشه رهبر
چون اوست در مدینه علم
خوش آنکه نهاد سر بران در
زین در تو مرو بهیچ بابی
تا راه بری بکوی دلبر
خاک در او شو از سر صدق
تا آب خوری ز حوض کوثر
من خاک ره چهار باز
از جان و دل ای پلیدِ ابر
از جهل مکن بر فضم اسناد
صد لعنت حق بر افضی باد

(۷)

در نردِ موحّد ان چالاک
یعنی که بذاتِ اوست قائم
غیری نبود ز روی ادراک
ترکیب تعینات افلاک
پس رفض به بین که هر که دارد
ای جان ز جفای کس میندیش
ان گمره چند شوم و ناپاک
ز انروی که عاشقی و بی باک
نقصان نرسد بذاتِ پاکت
ای طایر جان بگلشنِ قدس
گر بر تلت افگند بصد خاک
از مدح و مذمتِ خسیسان
پرواز بکن ز عالم خاک
ما شاد نمی شویم و غمناک
از جهل مکن بر فضم اسناد
صد لعنت حق بر افضی باد

(۸)

گر طالب حقّی ای نکوفال
از میوه علم مغز بردار
در حال درآو بگذر از قال
ای در ته پوست مانده حمال
یک بطن فرا گرفتی از علم
شش بطن دگر مساز پامال
زان علم بخوان که چنگ و نی گفت
دستیست درون دست قوال

از خود بخدا ره‌یست نزدیک در سر فلک بی‌یوست اشکال
 علمست بحق دلیل مطلق بر صفحه رویتو خط و خال
 در قال هنوز نا تمای با ما تو کجا رسی درین حال
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۹)

شیطان ز چه روی گشت مردود یعنی که ترا ندید مسجود
 از سر پدر خبر نداری وارث نه ای پسر بمقصود
 رو معرفت خدا بچنگ آر کز بهر همین شدی تو موجود
 خود را بشناسی و خدا را و ز عبد رهی رسی بمعبود
 بو جهل مشو محمّدی باش تا عاقبت تو باد محمّود
 یارانه بهر که هست پیش آی جز این بخدا که نیست بهبود
 از رویتو سر حق هویدا است نا حق مرو تو از ره اینچنین زود
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

(۱۰)

باید شد ازین رباط دو در ما و تو و جمله خلق یکسر
 پس بهر دو روزه زندگانی این وسوسه چیست ای برادر
 خود بی خبر امدی بعالم و ز قید حیات رفتی ابتر
 ز امد و شد ما غرض نه این بود مقصود نشد ازین میسر
 از دیدن معرفت نظر کن در آئینه روی کیست بنگر
 بی آنکه زما تو بر کنی پوست خوام شد ازینجهان قلندر
 بیداد مکن بجان سقا اندیشه بکن ز داد گستر
 از جهل مکن برفضم اسناد
 صد لعنت حق برافضی باد

Ṣūfī Bāyazīd's āstāna and Mosque.

Ṣūfī Bāyazīd's āstāna at Burdwan, which I neglected to visit previously, was visited on the 13th November, 1924. It is situated at a distance of one mile from the Railway station, on the Kālāna road, close to Khān-pukhar. The saint's tomb and the beautiful mosque adjoining it are well-known monuments, but very much neglected. The mosque is small—having only one dome. It is a massive building, well preserved and excepting the western side, three other sides are surrounded by floors. Rank vegetation, however, has grown on the outside of the western wall and roof. On the southern floor is the plain tomb of Ṣūfī Bāyazīd, where incense is burnt and offerings made. On Fridays, people congregate in large numbers, who bring offerings, including cocks, which are cooked and eaten. I saw clay horses too included in the offerings. The tank on the south-west of the mosque has silted up. The people there believe that the mosque is the work of some supernatural agent, and that it was built in one night. I was told that formerly the mosque and the tank had golden pillars and steps. The late custodian having died, and his family being extinct, a new custodian—a mendicant—has been appointed by the Muslims of the locality to look after the mosque and the āstāna of the saint. But he goes out on his begging excursions, and attends only on Fridays. There is no *hujra* or cloister where the custodian may put up and look after the shrine and the mosque. The property appertaining to the āstāna is enjoyed by a well-to-do family, the newly appointed *faqīr* has been given only four *Bighas* of paddy-lands. The common people of Burdwan approach the āstāna with veneration and awe. The mosque is seldom entered by them for fear of snakes, which they say, vanish on Fridays, I, however, entered the mosque and saw no snakes; but my guide frightened me that he had seen one on the doorway. The mosque was built by order of Emperor Farrukh-Siyar.

The people call this *Ban Masjid* (mosque in Woodland.) I found no inscriptions. I could not examine any deeds for the absence of the guardians of the shrine. The following account of Ṣūfī Bāyazīd is inserted from the *Riyāzu's-Salāṭīn*¹ with my own translation.

(شاهزاده عظیم الشان) به نصیحت درویشان و خدا پرستان میل تمام داشت و استدعای همت در باب حصول سلطنت می نمود - روزی سلطان کریم الدین و محمد فرخ سیر را بخدمت صوفی بایرید که از اجله اتقیایی وقت در بردوان سر خوش داشت فرستاده استدعای قدمرنجه نمود بعد

¹ B.I. Edition, pp. 242-243.

رسیدن ایشان آن درویش صفاکیش سلام سنت الاسلام ادا نمود سلطان کریم الدین شکوه شاعرادگی را کار فرموده اعتنا کرد فرخ سیر پیاده پا پیش رفته بتعظیم و تسلیم اقدام نمود و بادب استاده بعد گذارش سلام ادای پیام پدر کرد درویش از طرز ادب فرخ سیر راضی شده دست او را گرفته گفت بنشینید شما پادشاه هندوستان و همت بحال او میذول داشت و نیز دعای درویش بهدف اجابت رسید و از نتیجۀ حسن ادب آنچه پدر میخواست به پسر عطا گردید چون درویش بملاقات عظیم الشان رسید شاه استقبال نموده بعذر خواهی قدوم پرداخته در باب انجام مطلب دلی خود استدعای همت کرد درویش فرمود که آنچه شما میخواهید پیشتر به فرخ سیر داده شده اکنون تیر از دست چسنة را قابلیت عود نیست و خیر بادی در حق شاعراده گفته مراجعت بعجزه خویش کرد *

Translation.

Prince 'Azīmu'sh-Shān was very fond of listening to the
 'Azīmu'sh-Shān at advices of Darvishes and godly men, and
 Burdwan. seeking their prayer for the purpose of at-
 taining the sovereignty.¹ He deputed, one
 day, (his sons) Sultān Karīmu'd-Dīn and Muhammad Farrukh-
 Siyar to wait upon Šūfi Bāyazīd, who was one of the prominent
 pious men of the time at Burdwan, and requested his taking the
 trouble of calling upon (the prince). When they arrived, the
 clairvoyant saint, greeted them with *Salām* in accordance with
 the Islamic practice. Sultān Karīmu'd-Dīn elated by his princely
 dignity, heeded it not.² But Farrukh-Siyar
 Sufi Bāyazīd blesses walked up bare-footed to the (saint's) pre-
 Farrukh-Siyar. sence, and remained with reverence and
 humility standing. After offering *Salām*, he delivered his father's
 message. The Darvish (Šūfi Bāyazīd) being pleased with the
 manner of Farrukh-Siyar's courtesy, caught him by the hand,
 and said: "Sit down, you the Pādshāh of Hindustān" and
 gave him his benediction. The saint's arrow of prayer reached

¹ The sentence استدعای همت در باب حصول سلطنت has been trans-
 lated, in the Bibliotheca Indica translation p. 245 as 'he exerted himself
 to promote the welfare of the realm' for 'he sought their prayer to attain
 the sovereignty.' But in the *History of Bengal* by Charles Stewart (1813),
 p. 345, the passage has been correctly rendered as follows:—" (He) solicited
 their prayers for his succession to the throne."

² Šūfi Bāyazīd greeted the princes according to the Islamic custom
 but Sultān Karīmu'd-Dīn expected from the pious Šūfi the etiquette
 observed at the Mughul Court.

the target of acceptance, and as a reward of the elegance of manner, what the father wanted was given to the son. When the saint came to see 'Azimu'sh-Shān, the prince went forth (a few steps) to meet him. Having begged to be excused for (the trouble of) his coming, he asked the saint's prayer for the fulfilment of his wish (to succeed the throne). The saint replied: "What you want, has already been given to Farrukh-Siyar:—the arrow that has left the hand is incapable to return back." Bidding farewell to the prince, he returned back to his retreat.

Khanda-Ghosh in Burdwan.

On my way from Burdwan to Indus, I halted at Khanda-Ghosh, one of the largest villages of the district, eight miles east of Burdwan, on the road to Sonamukhi and Bankura. On the 29th October, 1915, I went to see the sepulchre of Diwān Sayyad Shāh Bahlūl, the patron saint and Mughul official of the village. At a place where the present Road Cess Bungalow is built, there lived, I was told, a large number of Muhammadan *faqirs*, and the quarter was called, after them, *Faqir-dāngā*. One of these mendicants had announced the hour of prayer by uttering *ādḥān*. The local Raja objected to this, had the crier punished by plucking his beard, and applying salt to the wound. He was, further, put into dungeon, a heavy stone was placed on his chest, and was given half a chhatak of paddy (unhusked rice) with a little salt for his food. At night, the prisoner, in a mysterious way, disappeared from his cell, and went to Shāh Jahān. Prince Khurram, the future Emperor, was then in Bengal, having rebelled against his father, Jahāngir. The prince, on hearing this outrage, sent one of his officers—Diwān Shāh Bahlūl, with eighteen troopers to Khanda-Ghosh, to punish the local Rāja, named Pushkar. They fought with the Hindus and became victorious. It is said that Shāhzāda Khurram while in Bengal passed through Khanda-Ghosh, where he halted for a short time.

It is said that Diwān Sayyad Shāh Bahlūl was a saint, who entered his tomb alive; and his men died natural deaths. The building containing the tomb, which I visited, is a massive one, well preserved. There was a basalt with an inscription, which fell down some years ago—the spot where it was fixed was vacant and broken. During the earthquake of 1304 B.S. (1897 A.D.), it was surreptitiously removed, or thrown into water by a mad man. I was told that 862 H. (1458 A.D.¹) was inscribed on

¹ This date does not agree with that of the Mughul Dynasty founded by Babar. This is the year when Bahlul Lodi (855-894 H.=1451-1488 A.D. was the Emperor of Hindustān and Nāsiru'd-Din Mahmūd Shāh (846-864 H.=1442-1459 A.D.) was the King of Bengal. The date communicated to me by the custodian of the shrine, is therefore, doubtful as it does not agree with the account he gave me.

the missing basalt. The tombs of the two other men—Daryā Mal and Fath Mal (or Tāl Jang and *Khajūr Jang*¹)—are also near the sepulchre of *Shāh Bahlūl*.

The well-to-do men of the village are Hindus, and the Muhammadan families have nearly disappeared or have been impoverished. The genealogical tree of a former custodian of the shrine, written in Persian, exists, which goes back to a long past. I could not wait to examine it. I was informed by a Brahman landholder of the village that in old Persian documents, the *Mauza* was called *Maḥal* or *Taraf Khand*. The present name is a modern one. It was the ancestral home of the late Sir Rash Bihari Ghosh, D.L.

MURSHIDĀBĀD.

Balghatta.

The present headquarters of Jangipur Sub-Division of the Murshidābād District lies on the west bank of the Bhagiratī, called Raghunathganj, being removed from its eastern bank some decades ago in consequence of the encroachment of the river. The portion of Raghunathganj with narrow lanes, and inhabited mostly by the masses of the people, is called Balghatta (*بلگھٹہ*), or Balighatta, which means Sandburg or Sandbank. When I visited the place on the 17th December, 1915, I was told that Balghatta was older than Jangipur, and a Muhammadan family of the place, claimed its descent from Sayyad *Shāh Murtaḍa-Anand*. The village Balghatta contains the following remains:—

- (1) A small mosque, built in 1040 H. (1630 A.D.) by *Shāh Ghulām Husayn Qādirī*,² a member of the above family.
- (2) Another very high but comparatively modern mosque, which is well preserved, with the following inscription:—

لا اله الا الله محمد رسول الله

نادعلیا مظهر العجايب تجده عوناً لك فی النوايب كل هم وغم سینجلی

بنیوتک یا محمد و بولایتک یا علی یا علی یا علی *

سید قاسم کہ از صدق و صفا مسجد کعبہ نما کردہ بنا

سال تاریخش بدل گفتم بگو . کین مرین قبۃ نور خدا

سنہ ۱۱۵۵

¹. These two queer names within brackets appear to be local or nick-names.

² Wrongly written in the J.A.S.B. for 1917 (New Series) page 150. Inscription VIII as *Shāh Husain Ghulām Qādirī*.

Translation.

[For the translation of the *Kalima* and *Nād-i-'Alī* vide p. 141 and p. 129, respectively, of J.A.S.B. for 1917.]

Sayyad Qāsim who in frankness and sincerity
Built a mosque looking like the K'āba (or pointing to-
wards the K'āba.)

I said to my mind its date to say
That it is an illuminated vault of God's light.¹

1155 H. (1742 A.D.)

The front of the building is peculiarly constructed. The eastern wall is raised beyond the main building; both northern and southern eaves of it touch the ground. The inscription is on the topmost part of this wall.

As both the mosques are built only a few feet apart from each other, which is contrary to the Islamic law, it appears that both the builders had religious differences; one belonging to the Qāidri affiliation, and the other to Murtuḍa Shāhi schism.

- (3) There is a broken basalt, kept within the last named mosque. I deciphered the following sentence inscribed on it in bold Ṭughrā character. It appears that the inscribed basalt belonged to a mosque, built during the time of Sulṭān 'Alāu'd-Dīn Ḥusayn Shāh.

خلد الله ملكه و سلطانه في شهر ربيع الاول سنة احدى و عشرين

و تسعماية *

[May God perpetuate his kingdom and rule. In the month of Rabī'ul-Awwal 921 H. (April-May 1515 A.D.).]

- (4) There is a tomb of Shāh 'Uṭmān on the roadside at Balghatta, which I was informed is a spurious one, venerated by the unwary masses. Here on a raised platform are kept two stone basalts (2 ft. 7 in. by 11 in.), one being a little bigger than the other. I could not at first find out why these two stone slabs were kept there. It appeared after mature consideration that the stones were never fixed to any mosque. There being certain mistakes and omissions in one of the inscriptions, a second slab was carved with the mistakes removed. Below are given the texts of both the inscriptions in *Juxta-position* with the differences overlined.

¹ This hemistich gives the required date of 1155 H.

Line 1.

الله لا اله الا هو الحي القيوم
لاتأخذة سنة ولا نوم له مافى السموات
وما فى الارض من ذا الذي يشفع
عنده الا باذنه يعلم ما بين ايديهم
وما خلفهم ولا يحيطون بشي من
علمه الا بماشاء ومع كرسية السموات
والارض ولا يؤده حفظهما و هو
العلي العظيم *

Line 2.

بناء هذا المسجد فى العهد والرحمن
ناصر الدنيا والدين ابو المظفر محمود
شاه السلطان بانيه خاقان الاعظم
الهام المعظم الغ سر افراز خان
خان محلي اعنى وزير دول در شرق
فى الثاني من شهر المبارك رمضان
سنة سبع واربعين و ثمانمائة *

Line 1.

Identical.

Line 2.

باني هذا المسجد فى العهد
والرحمن ناصر الدين ابو المظفر
محمود شاه السلطان بانيه خانمعظم
الغ سر افراز خان خان محلي اعنى -
فى الثاني من شهر المبارك رمضان
سنة سبع واربعين و ثمانمائة *

The inscriptions are engraved in two long lines. The first which is common to both, is the well-known *Āyatu'l-Kursi*. The differences are in the second line. The right-hand inscription is incomplete, but the left hand one is complete and accurate. They are hereafter called R and L, respectively. The first word in R is *باني* for *بناء* in L. For *خانمعظم* in R *الهام المعظم* is in L. The words *وزير دول در شرق* in L after *اعنى* have been entirely omitted in R, thus rendering the entire sentence meaningless.

The following is the translation in English of the corrected and fuller inscription :—

Line 1. [For the translation of the *Āyatu'l-Kursi* see J.A.S.B. for 1917, page 134.]

Line 2. This mosque was built during the time and the reign of *Nāsiru'd-Dunyā Wa'd-Dīn Ābu'l-Muzaffar Mahmūd Shāh*, the *Sulṭān*. Its builder was the Great *Khān*, the Noble magnanimous Prince *Ulugh Sarafrāz Khān*, *Khān-i-Mahallī* (*Khān* of the inside of the Palace, or Lord Chamberlain), in other words the

Minister of State in the East,¹ on the second of the auspicious month of Ramadān, in the year eight hundred and forty-seven (2nd Ramadān, 847H. = 23rd December, 1443 A.D.).

From the high titles used it appears that Ulugh Sarafrāz Khān—who enjoyed the dual functions of Lord Chamberlain and the Minister of State in the East—was of the Royal family. The inscriptions deciphered and translated by Babu Guru Das Sarkar are incorrect and do not agree with the Plates (V and VI) published by him.² He was misled by his munshi; Babu R. D. Banerji, of the Archaeological Department, who communicated the paper to the Society, ought to have checked the errors. The reading of other valuable inscriptions, for which we are indebted to Mr. Sarkar, ought to be scrutinised.

The following story regarding the extraordinary life of Shāh Murtaḍā Majdhūb, which I heard at Balghatta and also found noted in certain hagiographical works, will, I hope, be read with interest:—Shāh Murtaḍā, otherwise called Murtaḍā-Anand, was the son of Sayyad Hasan of Bareilly, and a disciple of Sayyad 'Abd'ur-Razzāq. Shāh Murtaḍā's grand-daughter, Asiā Bibi, was married to Sayyad Qasim Shāh, the builder of the mosque mentioned above. Sayyad Qasim, his father Rustam and grand-father Chand Quṭb, are buried at 'Umarpur, otherwise called Quṭbpūr, half a mile west of the Jangipur Railway Station. Sayyad Shāh Murtaḍā-Anand's miracles were many. The Khazīnatu'l-Āsfyā by Mufti Ghulām Sarwar of Lahore quotes from the M'ariju'l-Vilāyat that Shāh Murtaḍā lived at Rājmaḥal, in Bengal, was addicted, like Jogis, to wine, had miraculous power, and used to sing verses on the Divine Unity. He was very fond of music and ecstasy. There was another *faqīr* by the name of Shāh Ni'mat'ul-lāh Wali, who was Shāh Murtaḍā's contemporary. He had the power of captivating the attention of the nobility and 'Umarā; but he was at first very ill-disposed towards Shāh Murtaḍā, for the latter's anti-Islamic practices.³ Shāh Murtaḍā used to dive into the water of the river that flows below Rājmaḥal, disappear for days, and then re-appear on the surface. Some time he would dive into water, at Rājmaḥal, and appear at Suti, where he was subsequently buried.

The tradition regarding the union of Shāh Murtaḍā and Anand Mayī Devī which is current, is more extraordinary and is as follows: A marriage party of a certain Brahman was returning

¹ I have translated وزیر دول در شرق as *Minister of State in the East*; or as we would now say 'His Majesty's Secretary of State' in the East or Bengal.

² G. D. Sarkar—some traditions about Sultan Alaaddin Husain Shah and notes on some Arabic inscriptions from Murshidabad: J. and P. A.S.B. for 1917, pp. 143-151.

³ Shāh Ni'matullāh became afterwards reconciled to Shāh Murtaḍā, and became attached to him.

after the marriage ceremony was over. When it arrived at the river bank, the processionalists asked *Shāh Murtadā*, who was there, to move away, as his touch would contaminate the members of the bridal party. He moved away. When they reached home, it was found to their surprise that the *Shāh* and the bride were together within the litter. He was driven away therefrom. When the bride was taken into the house, there too, they were found together. The bridal party was sorely tired and became very apprehensive. The bride, who too was, attached to the *faqīr*, said : " It is not proper for me to remain here, I must go to the *faqīr*." So she came to *Shāh Murtadā*, and was by him converted and initiated to his cult. One day she said : " I was hitherto a member of a respectable family of Brahmins ; shall I hold a similar position now ? " He replied : " Your name will be before mine, and my name will be coupled with yours " Since then, he is called by his followers *Anand-Murtadā*, and by the common people *Murtadā-Anand*, as the girl's name was *Anand Mayī Devi*.

Shāh Murtadā-Anand's 'urus (death anniversary) takes place every year from 11 to 13 *Rajab*. On the last day, one of the *faqirs* of the Cult is elected to be the *headman*, and a hood is placed on his head by the *sajjāda-nashin* of the tomb, when the former offers a present to the latter. The newly elected head, with others then repairs to the tomb of *Shāh Nīmatu'llāh Wali* at *Firuzpūr*. Here he remains for a month till the 15th *Sha'bān*. He can go wherever he likes after the '*urus* of *Nīmatu'llāh Wali*. This function is repeated every year, and the former head can be reelected. The headman must be a *langōt-band* (celibate) and must have a *Murtadā-Shāhi distār* (hood). Formerly a guard used to be stationed at *Shāh Murtadā's* tomb but it has been discontinued by order of the Government. Copy of a letter on the subject from the Governor-General to the *Nawāb-Nāẓim* of Bengal was shown to me.

Shāh Murtadā was buried at *Suti*, also called *Suti Sharīf*. *Suti* is a thana of *Jangipur* sub-division. The northernmost point of the present *Jangipur* sub-division is occupied by the *Farakka* outpost and the *Shamshirganj* thana, south of which is thana *Suti* ; thana *Raghunathganj* is to its east. *Suti* is some five miles towards the north of the sub-divisional headquarters on the *Ganga*—here called *Padma*. The saint, his wife, and *Anand Mayī's* tombs had a common platform. When the tomb was about to be cut by the river, the coffin of the saint was removed to *Chhapghāti* close to *Suti*. When this place too was threatened by the river, the body was removed to *Harwa*, about eight miles, south-west, and buried there. This was, it is said, in accordance with what the saint had predicted that " my tomb would be in three places." The last named place is quite safe.

Shāh Murtadā was also a poet and used to sing in Bengali and Persian. The following *ghazal* is said to be by him :—

فارغ از سود و بیغم از ضررم دو جهانرا به نیم جو نخرم
از فریب جهان خبر دارم تا تگویی که مرد بیخبرم
قانعم همچو شیر در بیشه نه چو سگ بهر جیفه در بدرم
سرخ رویم چو لعلِ زمانی زر ازان زرد روست در نظرم
گذرانست عرقش دنیا بهتر آنست تیز تر گذرم

Translation.

Free from gain and unconcerned of loss, I do not purchase both the worlds for half a barley.

I am aware of the snares of the world, so that you may not accuse me of being unaware.

I am content like tiger in the forest and not like dog going about for carcase.

I am red-faced like the ruby (of the pomegranate colour), so gold in my sight is of yellow colour.

The world O Murtaḍā, is fleeting, 'tis better that I should pass away more quickly.¹

I may here mention that the habits, practices and beliefs of Murtaḍa-Anand and his followers—the *Murtaḍa Shahis*, as they are called—are Anti-Islamic. These are exactly the same as those of the Hindu Tantariks. Mr. Oman writes :—

“For the purpose of Tantric worship, eight, nine, or eleven couples of men and women meet by appointment at midnight. All distinction of caste, rank and kindred being temporarily suspended, they go through prescribed religious ceremonies, set up a nude woman, adorned only by jewels, as representative of Sakti (the female energy), worship her with strange rites, feast themselves on flesh and fish, indulge in wine, and give themselves over every imaginable excesses. During these orgiastic religious rites, every man present is, according to their pantheistic notions, Siva himself, and every woman there none other than Siva's Consort.”²

Again : “Sakti worship, is not perhaps as old in India as the phallic cult of Siva; but we know it was flourishing there in the eight and ninth centuries A.D.”³

These cults, I daresay, are to be met with in different

¹ Most of the informations regarding Shāh Murtaḍa-Anand were given me by Maulavi Sayyad Abu'l-Fazl, whose family is connected with the saint. My thanks are due to him.

² The Brahmans, Thiests and Muslims of India by John Campbell Oman M. C. M VII (London), p. 27.

³ The Mystics, Ascetics, and Saints of India by J. C. Oman (1903), p. 114.

parts of India under various disguises. *Vide* my paper 'On certain Tenets and Practices of a certain class of Faqirs in Bengal' published in the Journal of the Anthropological Society of Bombay.¹ The impressions one may carry after studying the life and practices of Shāh Badī'u'd-Dīn Madār and the Madārīs etc, are akin to those of the Murtaḍā Shāhīs and others.²

Māhinagar Mosque in Murshidābād District.

'Azīmganj is an important station of the Murshidābād District, situated on the right bank of the Bhāgiratī. On the left bank of the river is Jiaganj. Both 'Azīmganj and Jiaganj are connected with the city of Murshidābād, and are but suburbs of it. I visited 'Azīmganj more than once—the first visit being on the 21st December, 1915. In Māhinagar, police station or thana Asanpur, near 'Azīmganj is a mosque, which has the following inscription in Persian nasta'liq character, engraved on a stone slab, which has fallen from it. The space covered by the inscription measures 1'6" from right to left, and 1'1" from top to bottom. The verse consists of two distichs—each hemistich occupying a line. It must have been composed by an uneducated versifier.

کرد مسجد را بنا و اصل محمد مرد عهد
 قصر دولت زین ثواب اندر بهشت افراخته
 سال تاریخ بنای مسجدش مشهور شد
 خاص و عامش جمله میگویند مسجد ساخته
 ۱۱۷۳ هجری

Translation.

The mosque was built by Wāṣil Muḥammad, a notable person of the time, who as his reward (for it) has spread his castle of fortune to Heaven. The year of the building of his mosque became known: the high and low all say, "He built the mosque." This gives 1173 H. = 1759 A.D.

MEDNIPŪR (Midnapur).

This extensive District, owing to its geographical position, has the characteristics of its neighbouring Districts—Hugli, Bankura, Singbhum, Manbhum and Orissa, and the sea coast of the Bay of Bengal. 'The north and north-west consist of a hard laterite formation. The eastern portion, formed out of alluvial deposits of the tributaries of the Ganges, is similar to the eastern Dis-

¹ Vol. V, No. 4, pp. 203-218.

² Shāh Murtaḍā is said to belong to the order of Suhrawardīa, Kibravīa, Kirimīa, Ḥusāinīa. It seems to be an amalgam of various orders.

tricts of Bengal. On the south-west, the country, which is geographically part of Orissa, is a maritime tract subject to tidal waves and to the inroads of the sea'. The history and geography of the District are intimately connected with Orissa, as a large slice of it is but a part of the latter province.

Mednīpūr (head-quarters).

The head-quarters of the District is situated on the north bank of the Kasai river. In form it 'resembles a parallelogram with two irregular projections on the east.' Mednīpūr has been the battle-field of several contending parties—the Mughul Imperialist army, the Afghāns, and the Marathas. It was once a city of Sarkar Jaleswar, then of Sarkar Goalpara, both in Orissa, and later of Chakla Mednīpūr. It has, so far as I have seen, no very ancient monuments. I, however, noticed the following interesting Muhammadan monuments and remains:—

I. The *āstāna* of Chandan *Shahīd*, whose name was Diwan Sayyad Rājī. He was the *Khalīfā* (successor) of Maulāna *Shahbāz* of Bhāgalpur. Sayyad Rājī is also called Chandan *Shahīd*, on account of the red juice, like blood of a martyr, that comes out of the leaves, when plucked, of a Chandan or Sandal wood tree that has grown by the side of his tomb. I myself saw red juicy substance in a leaf that was plucked and torn in my presence.

II. I found an inscribed basalt lying on the compound of Chandan *Shahīd*'s *āstāna*. It was brought by the late Maulavi 'Abdu'l Qādir when he was the Sub-Divisional Officer of Contai, from Masnad-i-'Alī's *āstāna* at Hijli. The following inscription is engraved therein:—

بسم الله الرحمن الرحيم - قال الله تعالى اطيعوا الله و اطيعوا الرسول
 وولى الامر منكم لا اله الا الله محمد رسول الله الله اكبر الله اكبر
 لا اله الا الله و الله اكبر و الله اكبر والله الحمد *
 ه سن الف تسع عشر خواجه شبلي سنه ١٠١٩ ابن شيخ كردين ناوي *

Translation.

Saith God Almighty: *Obeys God and obeys the Messenger and those in authority from among you.*

There is no God but God, Muhammad is the Messenger of God. God is great, God is great, there is no God but God, and God is great and God is great, and to God is due praise.

In the year 1019 H. (1610 A.D.) by Khwāja *Shibli* son of *Shaykh* Gurdin Nāvi.¹

¹ The words are not known to me. Nāvi may mean a navigator, or Commander of the navy (nāo=boat or ship).

III. A large beautiful mosque, built by Diwān Kifayatu'llāh of Burdwan, during the early British rule.

IV. The tomb of Ghāzī Shāh Mustafā Madanī, buried inside the Old (or Maratha) Jail, and a mosque attached to it. Shāh Mustafā is said to be a saint, whose miracles are still remembered.

V. The tomb of a saint locally called "Pir Pahlwān" (athlete-saint) surrounded by long clubs and flags. The Collector of Midnapur occupies the building, in the compound of which the saint is said to have been buried. No one knows anything who the *pīr* was.

V. Bāla Shahīd's *kuṭn* or well (also called 'Faqr's well'). It never dries up even during the scarcity of water; it 'has a local reputation for sweet iron-impregnated water.' The tomb of Bāla Shahīd is near the well and outside of it are the tombs of his two sons.

VI. The only inscription that I could find in Mednīpūr town was engraved on a long basalt, fixed in front of a small mosque called Shāh Dhol, having a single dome, at the quarter of the town known, as Sipahi bazar or Khapril bazar. The trick was at once found out. As in the case of Shāh Ismā'il Ghāzī's tomb at Madāran,¹ so in this case, an inscribed basalt was removed from a *harūz* or reservoir, probably after its ruin, and fixed in front of this insignificant private mosque. The following verse is beautifully inscribed in two long lines, on a stone slab. The verse is so ill-composed that I can give only a rough and free translation of it. The words over-lined do not appear to be correct.

| | |
|-------------------------------|---------------------------|
| در ایام شاه جهان شاه غازی | که باداش ارکان دولت موید |
| بهم چشمی خضر آب بقائی | عیان گشت از سعی عادل محمد |
| که باشد سکندر بر اطراف حوضش | بکف کاسه تحصیل انرا مقید |
| زمین را شد از مقدمش دیده روشن | خلایق ازان یافت عمر مغلد |
| خود تشنه لب گفت تاریخ سالش | بده آبی از حوض عادل محمد |

سنه ۱۰۴۳ هجری

Translation.

In the reign of Shāh Jahān Shāh Ghāzī, may he be assisted by the pillars of his government, under the eye of Khidr, the water of life became visible with the help of 'Adil Muḥammad. By the side of its reservoir, Alexander is waiting with a cup in his hand, bent upon acquiring it. The eye of the earth became lit (illuminated) by its advent, and the living beings received

¹ Vide J and P., A.S.B. for 1917 pp. 131-138.

by it life everlasting. Wisdom with parched lip said its date :
 "Give water from the reservoir of 'Ādil Muhammad."

All that I can make out of this silly, incorrect, and bombastic verse is that this *hauz* or reservoir, to which the slab was fixed or intended to be fixed, was excavated in the year 1043 H. (1634 A.D.), during the reign of Emperor *Shāh Jahān*. The allusion to *Khidr* and Alexander needs no explanation.

VII. Besides the above there is a shrine of *Yādgār Shāh* at Mahtabpur, which I have not visited.

NARAYANGARH.

(See Plate.)

I visited Narayangarh, an important place, and a station of the Bengal-Nagpur Railway, in the District of Midnapur on the 31st July, 1915, and went round the Mauza'. The family of the raja traces its rule to the time of the Pala kings of Bengal. I was surprised to learn that while the surrounding villages had very little Muhammadan population, Narayangarh had a large number of them. This, I was told, was in order to garrison the fort at Narayangarh—which was not only a seat of a Hindu potentate, but also because of the Royal road that passes through the western side of the fort to Katak (Cuttuck), requiring constant influx and efflux of troops for purposes of Government. These forts on strategical positions, surrounded by Hindus, were garrisoned by Muhammadan rulers and their Viceroys, with their own co-religionists, as a 'steel frame' of their Government. "The fort of Narayangarh" says the Midnapur Gazetteer, "lying on the highway between Bengal and Orissa, was regarded as the key of the latter country." The raja who had the title of "Mari Sultan" (Lord of the Road) was held responsible for maintaining peace and order on it; and the Muhammadan force to remind him of his duties.

According to the Gazetteer, Narayangarh "contains the remains of a ruined fort. Two ancient lines of fortifications, an outer and inner line, surround the fort, the space enclosed within the latter being above half-a-mile square. The actual buildings are not very striking, though there are some fine old tanks. The Cuttuck road passes through the western side of the fort, the western rampart running parallel to it for some distance."

The following account regarding the occupation of Narayangarh was told me by local Muslims, who also explained the antiquities of the place: At first there were certain Muslims, who were all good men and whose tombs can still be seen at Narayangarh. Emperor 'Ālamgir, as a prince, passed through Narayangarh to take part in the wars of Puna and Satara. He got victory in those wars through the blessings of a *faqir*. Once more on his way back, 'Ālamgir, came to Narayan-

garh, and lived there for six months. At this interval a spy, who had a letter concealed inside his shoe, addressed to the Rāja of Ijanagar, near Sambalpur, was taken prisoner. In it was written that the Rāja should give away his daughter, in marriage, to the Prince, and have the latter humbled through her.

A *Bāra-darī* was constructed, at Narayangarh. The village, it is said, was reclaimed by Shāh Sayyad Ranjit Śāheb, the patron saint of the village. When at Narayangarh, Prince 'Ālamgir once said that he saw none there who might be his match in fight. "I can fight with your highness," said the Rāja of Narayangarh, "for an hour or two, if you will permit me." Permission being readily granted, the Rāja let in water to the *garh* or entrenchment that surrounded the place, which became soon filled with water. He also commenced shooting arrows at the Prince's quarters. "What's the matter?" inquired the Prince. The Rāja replied. "This is the skirmish of which I had spoken." His highness was greatly amused by the Rāja's tactics. As a reward the Rāja of Narayangarh was thenceforth dubbed with the title of "Shri Chandan Mārī Sultān." It is said that 'Ālamgir also visited Mednīpūr, Mahtābpūr, and interviewed Chandan Shāhid, Yadvūr Shāh and other local saints. I was shown copy of a *farmān*, by which rent-free lands were granted to Yadvūr Shāh of Mahtābpūr; the original of which was with one 'Āli Ḥasan at Mahtābpūr.

As far as I know the above information is not quite authentic. 'Ālamgir never came to Bengal. It was Shahjahān, as Prince Khurram, when he had rebelled against his father in 1622 that marched from the Deccan through Orissa and Mednīpūr, driving Ahmad Beg Khān, the Governor of Orissa before him to Burdwan. For two years Prince Khurram was master of Bengal. In 1624 he fled to the Deccan through Mednīpūr. Again, during the siege of Hijli, in 1687, and Subha Sing's revolt in 1696 and Prince 'Āzimu'sh-Shān's Viceroyalty and 'Āli Vardi Khān's march in 1740 against Murshid Quli Khān, Governor of Orissa, and Maratha wars, and subsequently when 'Āli Vardi Khān appointed Mir J'afar Khān *Faujdar* of Mednīpūr who defeated a body of Marathas and Afghāns, till the last days of Mughul rule, Mednīpūr was the seat of conflicts between rival parties. In or about 1750 "the two armies" (of 'Āli Vardi Khān himself, barracked at Mednīpūr, and of Sirāju'd-Daula, just returned from Balasore) "joined at Naryangarh." It must be one or other of these Muslim leaders that might have come to Narayangarh and conferred the title of *Shri Chandan Mārī Sultān* on the chief of Narayangarh for his loyalty and co-operation.¹

¹ As the Rāja of Narayangarh was anointed with the sacred *Chandan* or Sandal-paste from the navel of Lord Jagannath of Puri, he was called "Shri Chandan"; and *Mārī Sultān* or lord of the Road was the title given

Here at Narayangarh I saw what was called "Bāra-Dari" tanks, so called after the aforesaid Bara-Dari buildings, with twelve doors—traces of the trenches around it may still be seen.

I saw a small but fine mosque, the roof of which I found dismantled, with the following inscription on a small gray stone, lying within it. The good Muhammadans of the locality raised a decent sum, in order to have the mosque thoroughly repaired. But I regret to learn that a mason to whom they had made over the amount for the purchase of building materials, misappropriated the amount, and nothing has since been done. The Persian inscription (1ft. 4½ in. × 8 in.) is engraved in bold t'aliq character in seven lines thus:—

- 1 * مو
- 2 در عهد و کلاه سرکار *
- 3 شاه شجاع بهادر *
- 4 محمد شفیق ثمانه دار *
- 5 این مسجد را بنا کرد *
- 6 و تاریخ تمام مسجد دلپذیر *
- 7 افتد شد سنه ۱۰۶۵ *

Translation.

During the time of the representatives of His Highness Shāh Shujā Bahādur, Muhammad Shafi, the *Thānādār*, built this mosque; and the date of its completion was found in "Masjid-i-Dilpizir" (delightful mosque.) Year 1065 H. (1655 A.D.)

From the above it appears that Sultān Muhammad Shujā, who came to Bengal twice, ruled these outlying tracts by *Wakīls* or representatives, and Muhammad Shafi, who was a *Thānādār*¹ or Warden of Marches at Narayangarh, to guard the frontiers, built this mosque in 1053 H. (1643-44 A.D.)

The second inscription quoted below is in Persian verse of three distichs, written in six lines. The stone with others I

him by Prince Shāh Shujā (Māri=Road). The above information was supplied to me by a man well acquainted with the Narayangarh Rāj. The Prince who gave the title and came to Narayangarh was according to him Shāh Shu

¹ *Thānādār* was the Chief of the Thāna. Thāna, according to *Hobson-Jobson*, originally meant a fortified post with its garrison, for the military occupation of the country; and according to *Pādshāhnāma*, a corps of cavalry, matchlockmen, and archers, stationed within an enclosure. Their duty was to guard the roads, to hold the places surrounding the Thāna and to despatch provisions (*rasad*) to the next Thāna.

هو
در مدو کلاو کار
شاه شجاع همدان
محمد شفیق تهمیدار
این حجر ایتکار
قماریج اتمام مسجد
یافت شد ۱۰۹۵

Inscription of Narayangarh Mosque.

found, fixed on the road side by the side of the tomb of a Muham-madan saint *Āl-i-Sāhib*; probably they were removed from a mosque that has long since disappeared. The inscription measures 1 ft. by 10 in. The 1st, 3rd and 5th lines begin on the margin of the stone slab, and the 2nd, 4th and 6th or alternate lines, being removed five inches to the left. Similarly the former end 3 inches to the left. This is the inscription:—

الله اكبر
 چه مسجدی و مکانی چه خوش صفا و منیر
 که جای طاعت و معبد امیر و فقیر
 بیاد گاری و ابقای نام نیکویی خود
 نموده سعی و تهنای دهورنش تعمیر
 خرد گرفته تمامی سال تاریخش
 بدور عهد همايون شاه عالم گیر

سنه ۱۰۷۹

God is Great.

Translation.

What a mosque and building! How neat and bright! A place of divine service and abode of worship for the rich and the poor! To Commemorate and perpetuate his good name, he took pains and desired to build the same. Wisdom computed the year of its construction (thus (?).)—During the auspicious reign of *Shāh Ālamgīr* 1079 H.

The year of construction is 1080 H. according to the last line of the verse—which is one year more than the figure on the margin. (1079 H. = 1668 A.D.). The above verse is incorrectly and badly carved. The two words *overlined* are doubtful. The first word ought to be *امیر*; the second is so written that it cannot be deciphered. It might stand for *مسجدش* which would not, however, be quite accurate.

The tomb of Makhdūm Shihābū'd-Dīn Āuliya Chishtī at Qasba-i-Amarsī, in the District of Mednīpūr.

There is a road of thirty-six miles from Belda Railway Station to Contai (*Kānthī*), which is metalled and bridged. The village Egra (also called Agrapatna) is 18 miles from the above station. Egra or rather Nagwan was a seat of a Joint-Magistrate's Court. Here at the Egra Inspection Bungalow, Bankim Chandra Chatterji, I understand, wrote his famous novel, *Kapal Kundala*. I visited Egra on my way to Contai and back on the 11th and 17th May, 1915. Qasba-i-Amarsī (commonly

called Amarsi-Patāspūr), also called simply Qasba, is five miles to the north of Egra. The tomb of Makhdūm Šāhib at Qasba-i-Amarsi is attached to a mosque, which has an inscription. The following account of the saint has been supplied to me :—

Makhdūm Shihābu'd-Din who was of Chishtī affiliation, came to Bengal in the year 1102 or 1103 H.¹ from the West, and halted at Amarsi. There lived at that time a Rāja, named Amar Singh, who was cruel and intolerant of any Musalman living in his rāj. He would not look at their faces in the morning. It is said that he hung up a shoe on his main gate, and those who wanted to see him, were ordered to make obeisance to the shoe first, before they could see him. The Makhdūm Šāhib having heard this, proceeded himself to visit the Rāja. The gate-keepers ordered him to bow to the shoe hanging on the gate. He not only declined to comply with their impudent request, but drew his sword, and attacked and killed them. The Rāja being informed, ordered the intruder's head to be cut off. No one dared to approach him. On the contrary Makhdūm Shihābu'd-Din killed the Rāja with his own hand. The Rāja's men fled. This intolerable tyranny on the part of the Rāja, and the fanatical zeal on the part of the Musalmāns, led to the spread of Islām in this part of Bengal.

After this incident, all people—rich and poor, young and old—flocked round the saint, who lived with his friends and disciples at Mauza' Shāmgola, otherwise called Shihābpūra in a *kachcha* hujra or cloister. The Jāgirdārs and landholders gave lands for the expenses of the saint and his men, which at last amounted to 120 *Batis*. By the death of the Rāja, and on account of the stay of the Makhdūm Šāhib at Amarsi, the number of Muslim population increased; and his miracles and extraordinary valour were talked about.

Having heard of his fame, the ruler of Chakla Hijli, Masnad 'Alī Shāh came to see Makhdūm Shihābu'd-Din. After some-time, he became one of his disciples. It is said that Masnad 'Alī, at the end of his rule, adopted the life of poverty. Masnad 'Alī's miracles are still remembered, and his tomb is on the sea coast at Hijli. The hujra (retreat), the mosque, and the tomb of Makhdūm Shihābu'd-Din were constructed by Hazrat Masnad 'Alī Shāh. These have been managed by the disciples of the saint that came with him, and by their descendants. Now owing to differences among the custodians of the shrine, and their neglect to pay Road-Cess to Government, the Pirattar lands appertaining to the Auliya's *āstāna* have been sold and purchased by the Bengalis. The *āstāna* is now in ruin. The inscription on the mosque, attached to Makhdūm Šāhib's rauda or tomb has the following Persian verse. Portions of the inscrip-

¹ This is the date given me by the custodians of the shrine.

tion written in relief are broken and lost, on account of exposure to sun and rain. Hence certain portions of the inscription are read rather by conjecture than what they really contained. Portions overlined are apparently incorrect.

چو این مسجد که بر روی زمین است
 بلا شک مہبطِ روح الامین است
 نماز از صدقِ دل بگذار اینجا
 کہ راہِ رستگاری تو این است
 برای اولیا مخدمِ شہاب الدین
 کہ بس او تابعِ دین متین است
 ز ہاتف خواستم تاریخِ سالش
 بخوشتر گفت سال او همین است
 این مصرعہ بگفت از بہر تاریخ
 معین او رب العالمین است

Translation.

As this mosque, which is on earth, is undoubtedly the landing-place of the Faithful Spirit.¹

Do perform your prayer, with devotion, here, for this is the road to your salvation.

(It was constructed) for Makhdūm Shihābu'd-Dīn Āuliā, as he is the devout follower of the strong-faith (Islām).

I asked the unseen messenger the date of its construction ; with pleasure he said that its date is this—

This hemistich, said, as its date : “ His supporter is the Lord of the Universe.” (1072 H. = 1660-61 A.D.).²

As the lands appertaining to the *āstāna* have lately been sold, for non-payment of the Road-Cess, owing to the disunion of the people, whose duty it is to look after them, the Muslims of Amarsi wish—so they told me—that the Government should take up the proper management of the shrine, and see to the preservation of the monuments. The simple Muhammadans of

¹ Angel Gabriel.

² As the hemistich which records Makhdūm Shihā-bu'd-Dīn's death is mutilated and incorrect, I am unable to reconcile the dates of his arrival, stay, and the Masnad-i-Ālis appearance, at Amarsi, to see the saint. If a correct version of the inscription could be obtained, I dare say, the uncertainty noted might be removed. I had no time to examine deeds.

the place never thought that the Piruttar property should ever pass into other hands and that the Government would not come to their help.

It is said that Tāj Khān, who had the title of Masnad-i-‘Āli, conquered Hijli, on the left bank of the Rasūlpur river, and 3 miles south of Khijri, in the Contai Sub-division, and founded a Muslim settlement. His tomb, at the mouth of the river, is venerated; and miracles are attributed to it. It is said that Masnad-i-‘Āli Tāj Khān ruled over the tract from 1505 to 1555 A.D. This does not tally with Makhdūm Shihābū’d-Dīn’s stay at Āmarsī. The Masnad-i-‘Āli who was contemporary of the Makhdūm Shāhib, must, therefore, be one of Tāj Khān’s successors, having the same title.

Tamlūk.

Tamlūk—the ancient Tamralipta—is situated on the river Rupnarīyan. This ancient inlet of the sea, mentioned in Jaina, Buddhist, and Hindu literature, and visited by Chinese travellers—Fa-hian, Hiuen-Tsiang, I-tsing, and the Korean Hwui-Lun, close to which Asoka had erected his stūpa—is now the head-quarters of a sub-division of the Medinipur District. The channel connecting Tamlūk with the sea having silted up by the latter half of the sixteenth century, it ceased to be the port of embarkation for Ceylon. I visited Tamlūk on the 21st September, 1915, and had time to note the following Muhammadan traditions:—

There was a *Bāradari* built during the time of Emperor Aurangzib, which has been washed away into the river. Later, there were built, at *Narpota*, a mosque and an ‘Id-gāh. The Tamlūk Rāj was made over, for default of revenue, to Mirza Didār ‘Āli Bēg, a eunuch, by Masnad(-i-‘Āli) Muhammad Khān, Faujdār of Hijli. On the death of the Mirza, the Kaivarta Raja got the Rāj back which later on passed to the Raja of Mahisadal. The tomb of Mirza Didār ‘Āli Bēg is within the Raja of Tamlūk’s palace.¹ The expenses of ta’ziya, during the Muharram, are still defrayed out of the landed property, more than 100 bighas. The lands appertaining to the mosque have been taken away by the Rāja of Mahisadal.

I was shown by the Muhammadans of the place a Royal *Sanad* granted by the Āmir‘u’l-Umarā of Emperor Aurangzib.

BIRBHŪM.

Sāogāon Mosque.

Lābpūr is a village in the District of Birbhūm. It is a sacred place of the Hindus, where the Sati’s lips fell. The

¹ *Vide* Midnapur District Gazetteer (1911), pp. 220-227.

temple of Phullara with an enclosure for feeding jackals, which is considered sacred to the goddess, is a noteworthy sight of Lābpūr. I visited Lābpūr via Ahmadpūr Railway station, on the 18th July, 1915. Seven miles north-east of Ahmadnagar Railway station is situated Mauḡa' Sāogāon or Sāogrām, where there is a masjid with the following inscription in Persian :—

بنای مسجد مذکور از سید پهار ولد سید حسن ابن سید شاه سید
(سعید ؟) حسینی که از فرزندان شاه شجاع کرمانی مشار الیه چهار
برادر فتح محمد و شرف الدین و محمد مراد در عهد شاه اورنگ زیب
غازی سنه ۱۰۶۴ هجری قدسی *

Translation.

This illuminated mosque, built by Sayyad Pahār, son of Sayyad Ḥasan, son of Sayyad Shāh Sayyad (? S'aid) Husayni, who was descended from Shāh Shujā' Kirmānī—the aforesaid (Sayyad Pahār) being one of the four brothers, viz., Faṭḥ Muḥammad, Shārafu'd-Dīn and Muḥammad Murād—during the reign of Shāh Aurangzib Ghāzi in the year 1064 H. (1654 A.D.)

The language as it stands is loose and not quite accurate.

MISCELLANEOUS NOTES.

Murshidābād.

I visited the Katra Mosque, in the city of Murshidābād, built by Murshid Qulī J'afar Khān, on the 18th February, 1916. I looked up to the inscription, which I could with difficulty decipher, from below. The following is the text of the distich :—

محمد عربی گبروی هر دو سراست^۱
کسی که خاک درش نیست خاک بر سر او^۲

^۱ The Majma'u'l-Fuṣṣahā has محمد عربی گبروی هر دو سراست but Ethé and Sachau (Catalogue of Bodleian Library) confirm the reading in the inscription.

^۲ The above distich is by poet "Hilālī Āstrabādi" (d. 935 H.=1528 A.D.). The following three *baits* of Hilālī including the one inscribed, are quoted from Riḍā Qulī Hidāyat's *Majm'au'l-Fuṣṣahā*, Vol. II

محمد عربی گبروی هر دو سراست
کسی که خاک درش نیست خاک بر سر او

[Muhammad of Arabia who is the eyebrow (object of reverence) of both the worlds; he who is not dust of his portal, dust be on his head!]

Also went to see Basant 'Alī Khān's *Qadam-Rasūl* in the same city. He was Khwaja-Sarā or eunuch Qadam Rasūl and of the palace. The Khwaja-Sarā brought Nuṣrat Shāh's Gate. from Gaur a huge gate with the following inscription carved in unusually large letters. The gate was built by Nuṣrat Shāh in 936 H.

بني هذا الباب السلطان المعظم المكرم السلطان ابن السلطان ناصر الدنيا
والدين ابو المظفر نصرتشاه السلطان ابن حسين شاه السلطان الحسيني
خلد الله ملكه و سلطانه في سلة ست وثلاثين وتسعمائة *

* ٩٣٦ هـ قري

Translation.

This gate was constructed by the great and liberal Sultān King son of a King, Naṣīru'd Dunyā-W'a'd-Dīn Ābu'l Muẓaffar Nuṣrat Shāh, the Sultān, son of Husayn Shāh, the Sultān-al-Hasayni, may God perpetuate his kingdom and sovereignty, in the year 936 H. (1529 A.D.)

The above are maintained by an endowment. A Muhammadan, who sits in a well-furnished house, takes the signatures of visitors in a book kept for the purpose. I also signed my name. Visited the place where Sirāju'd-Daula was killed and on the western bank of the Bhāgirati, the cemetery of 'Alī Vardī Khān, of his grandson, Sirāju'd-Daula, and of the latter's wife.

Aurangābād.

Visited Aurangābād in Murshidābād District on the 21st February, 1916. All Muslim antiquarian remains have disappeared. The town was established in Aurangzib's time, and a Sarai and Bāuli constructed. The ruined Bāuli and the remnant of the road with *pipal* trees planted on both sides of

شنيده ام كه تكلم نمود همچو مسيح
بدین حدیث لب لعل روح پرور او
كه من مدینه علم علی درست مرا
عجب خجسته حدیثی است من سگ در او

Of the above with the well-known poem by Bairām Khān, Khān-i-Khānān (b. 933 H=1526 A.D. d. 1561 A.D.) on the same model; the opening couplet of it, viz.

شبی كه بگذرد از نه سپهر افسر او اگر غلام علی نیست خاک بر سر او

is certainly a good imitation of the earlier poet; but taken as whole Hilālī's lines excel Bairām Khān's.

it, can still be seen. The place is called *pipal-patti* on account of the pipal trees. The sub-divisional head-quarters was transferred from Aurangābād to Jangipūr in 1856, and recently in 1915 the name of the Sub-Registry Office has been changed from Aurangābād to Nimtita.

Mednīpūr.

Patāspūr.

My stay at Patāspūr was too short to enable me to examine old *sanads* and ruins. The mauza Patāspūr in Mednīpūr, is the headquarters of an extensive Pargana of fifty-five square miles of the same name. The Pargana was a Maratha Estate of Sarkar Gwalpara of Orissa, and was occupied by the English in 1803.

One Shāh Ābu'l-Baqā came and settled at Patāspūr, one of whose descendants was Maulānā 'Abdu'l-Karīm. The latter was related to some of the prominent Muhammadan families of the District by the marriage of his three sisters. Tombs of Shāh Ābu'l-Baqā and others are close to the police station. There exist two Royal Sanads with a prominent family of Patāspūr: one given by Emperor Aurangzib was shown to me; and the other was not available, as the gentleman, in whose custody it was, had been away from home. There exists an Arabic Madrasah from before the British occupation of the province. The Government assists the Madrasah with a fixed contribution.

Nandigrām.

Geonkhāli, on the Hugli, can be reached from Calcutta by steamer, and Kukrāhāti by boat from Geonkhāli. Nandigrām is 17 miles to the north of Kukrāhāti. I visited Nandigrām on the 19th January, 1915. About 3 miles, south-east of Nandigrām is Garh-Chakarbera, and 2 miles north of it (Nandigrām) Muhammadpūr. The former is so called, because there were trenches in former times, now converted into tanks.

The following curious story was related to me by Sayyad Solomon's throne and ring. Khādim Husayn of Amgachha in Pargana Gum-garh. It is said that prophet Solomon's throne—while travelling in air—rested at Garh-Chakrabera and Muhammadpur. There exists an *ostāna*, which is no doubt spurious. It is also said that Solomon's ring was lost here, hence the locality is called Gum-garh (= a garh where it was lost).

Dāntan.

Visited Dāntan, on the Orissa Trunk Road, forty miles south of Mednīpūr, which is also a station of the B.N. Railway, on the 29th September, 1915. The village contains two very exten-

sive tanks, the temple of Syamleswar and Chaitanya's tooth-brush, carved on stone. It was the traditional capital of Rāja Bhoj. Two miles north of Dāntan, or a mile and half from Nikursini station is situated the battle-field of Mughul-māri,

where there was fought in 1575 A.D. a
Mughul-māri. battle between the Mughuls and Afghāns.

The name, according to the accepted *etymology*, signifies "the slaughter of the Mughuls." But here the Mughuls won the victory and the Afghāns were thrashed; so the etymology cannot be correct. The common people of these tracts do not follow the idiom of Dihli and Lucknow. "Mughul-māri" according to Hindustani idiom cannot mean the place where *Mughuls beat the Afghāns*, "but where Mughuls were beaten." But this is against the fact. The language of the people of the locality, who are ethnologically Ūrias is not Urdū, but a patois of Ūria, Bengali and Hindi—Ūria predominating. In my opinion the word *māri* is really *māri* (with a hard *r* as in *gāri*) meaning *road*. As the Rāja of Narāyangaṛh had the title of *maṛi-Sultān* or Lord of the Road, so here the same word is used in the same sense, *viz.*, road. Both the places formed till recently parts of Orissa, and are connected with the same Pādshāhi or Royal Road. This road is the Mughul Māri or the Mughul Road. Therefore, the battle of Mughul Māri indicates the seat of the battle (*e.g.*, the battle of Uday Nala or the battle of Plassey) and not the persons engaged therein, or the party that won the victory. The battle-field is north-west of village Tarkura, called Mughul Māri which, I suppose, is a contraction of "battle of Mughul Māri." To interpret the word differently would be historically, geographically and philologically incorrect. None of the contemporary historians (Ābu'l-Faḍl, Badāyūni or Nizāmu'd-Dīn Aḥmad) calls the battle-field by the name of Mughul-Māri but by its neighbouring villages.

Hugli.

While on a visit to Hugli town, I was informed that there existed the following archaeological remains :—

I. A Royal mosque, near the police station, close to the residence of the Muhammadan Government-pleader.

II. At Purani Bazar, close to the old fort, a small mosque called "*Ārhai Gumbiz ki masjid* (mosque of 2½ domes).

III. Within the fort the tomb and mosque of Sayyad Shāh Chānd. They have no inscriptions. I regret I could not examine them.

Conclusion.

These notes are now concluded. They will show the undeniable though half-told truth as to the decadence of the Muhammadans of Bengal, and the pitiable plight they have

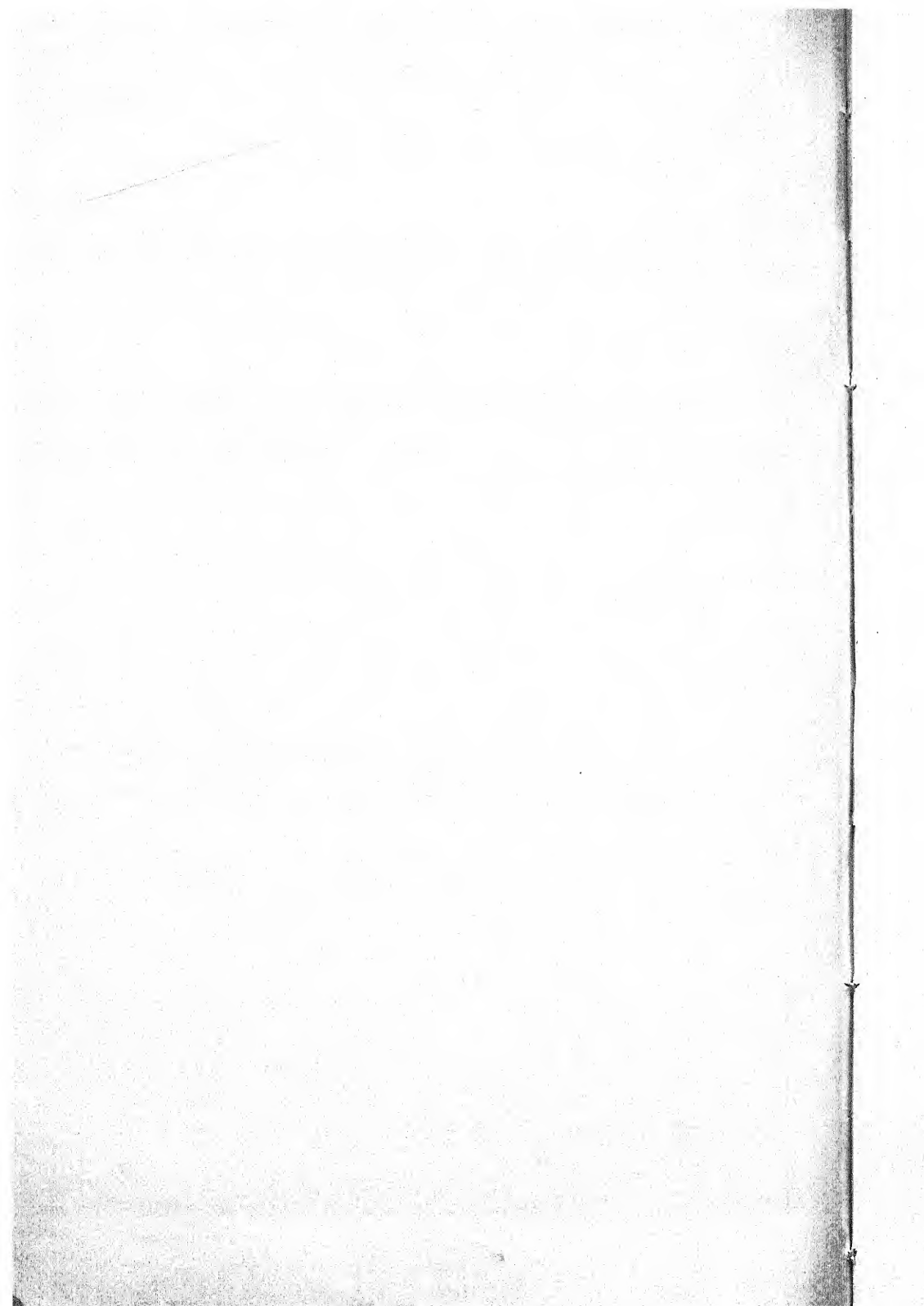
slowly, silently, but steadily and surely, been reduced to, within a period of less than a century. By the revolution of government, educational policy, sudden change in official and court language, on the one hand; and by famine, indebtedness, unemployment, in addition to the pestilential climate of Bengal, on the other, the majority of the Muslims have almost been reduced to the verge of ruin, or to the position of serfs—rendering them a negligible factor. Wherever I did go, whatever families I did visit or hear of, I found the community in dire distress. Their landed properties have changed hands, houses and mosques crumbled away, Madrasas and *Khānqāhs* closed, tanks silted up or overgrown with weeds. Many have deserted their villages or are wandering about aimlessly. Members of educated and once historic families have ceased to pursue the learnings of their forefathers, or to acquire the vocational education of the day. A terrible calamity has overtaken the landless Muslim families of Bengal—which is also true of the other parts of India.

In concluding this latest instalment of these notes, which

Acknowledgments. I commenced some eight years ago, I beg to acknowledge my indebtedness to those gentlemen, who ungrudgingly placed at my disposal such documents and informations as are not easily available for reference. My thanks are particularly due to—

Babu Asutosh Baksi (Egra); Babu Mahendranath Ray (Narayangarh); M. Muhammad Nūrullah (Pandua); M. Khalilur-Rahmān Khān Chaudhuri (Arambagh); Sayyad Zurghamu'd-Din Hyder-al-Husaini (Azimganj); M. Mahmūd Suhrawardy and M. Izhār Husayn (Midnapur); Qādi Abu'l-Hasanāt, Sayyad Zaki Rizā and Sayyad Muḥammad 'Alī Mīrza (Murshidabad); M. Sayyad Abu'l-Fazl (Jangipur); M. 'Abdu'l Mumin (Garh-Madāran); Sayyad Tajammul 'Alī (Santipur). My thanks are also due to those Muhammadan gentlemen of Amarsi, Narayangarh, Pataspur, Birbhum, Burdwan, Khand-Ghosh, Kālāna, Mangalkot, Madāran, Santipur and other places, who courteously communicated to me the traditions regarding the ruins and remains of a bygone Islamic civilization in Bengal.

I have freely consulted books, District Gazetteers, statistical accounts and published reports of the places noted, in order to elucidate my own observations and opinions.



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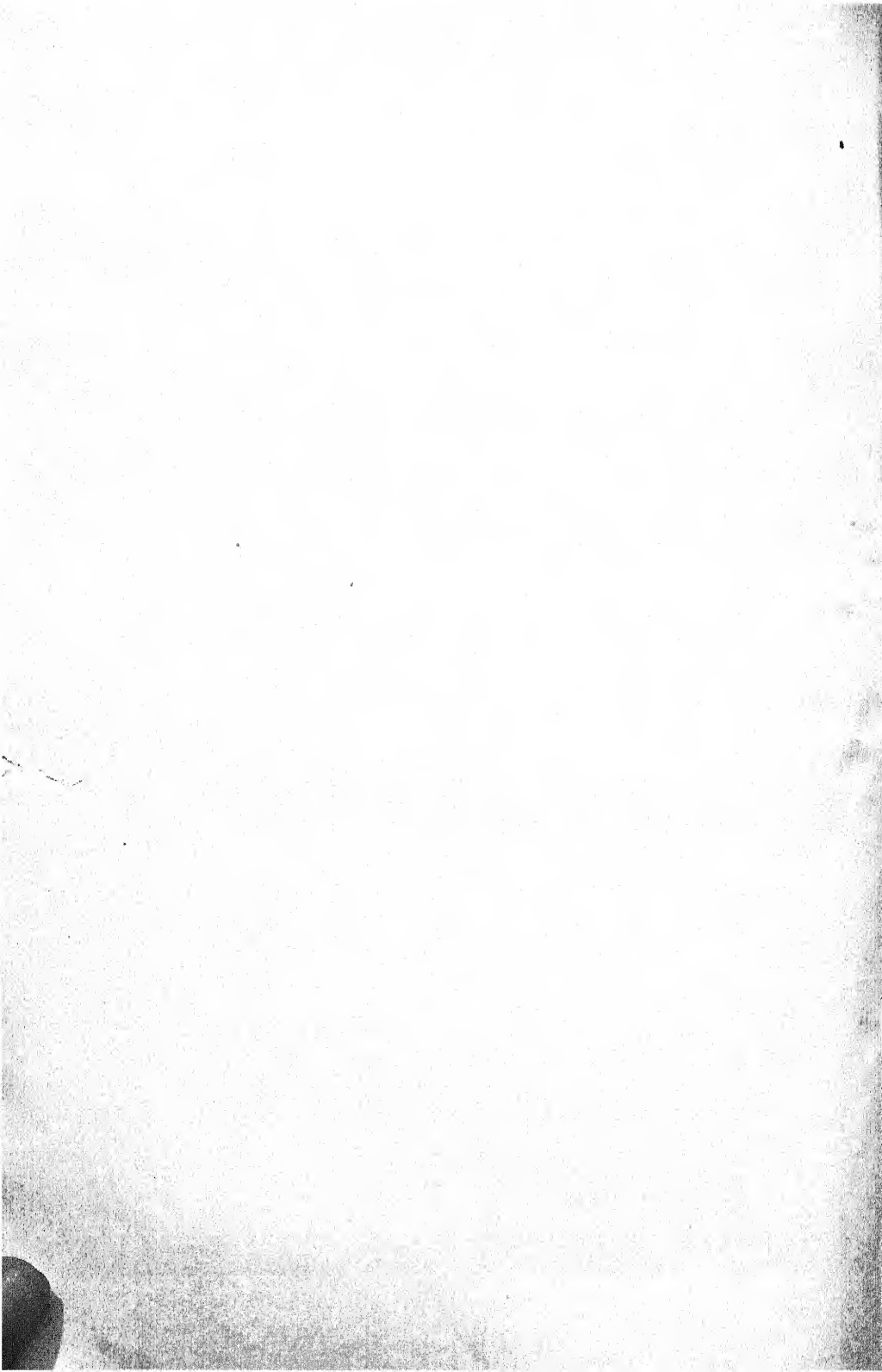
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